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ABSTRACT

A study examined the academic, research, and extension programs of selected agricultural institutions in the Asia-Pacific region in order to determine the extent of their involvement and participation in promoting rural development. Questionnaires were mailed to 65 institutions in 16 countries; 28 (43.1 percent) were returned from 10 countries: India, Indonesia, Malaysia, Nepal, Papua New Guinea, the Philippines, Singapore, South Korea, Sri Lanka, and Thailand. Among the findings were these: (1) the majority of institutions were government-supported colleges that offered undergraduate and graduate programs and diploma courses; (2) over half of the institutions started offering and requiring courses in extension education, community development, and rural development before 1980, but only 30 percent had developed instructional materials for extension education; (3) research activities of the institutions covered a total of 187 topics or studies in 9 general areas; (4) the research finding were disseminated through the mass media, trainings, workshops, seminars, and farm demonstrations; and (5) an estimated 200 to 200,000 persons were served by the extension or outreach programs of the surveyed institutions. The document includes nine tables and seven references. The appendix, which forms half the document, offers the questionnaire as well as lists or tables on such topics as: (1) responding institutions; (2) courses offered; (3) instructional materials developed; (4) research projects; (5) training programs; and (6) extension priorities. (CML)

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Regional Co-Operative Programme in Higher Education for Development in Asia and the Pacific

Higher Agricultural Education and Rural Development in Developing Countries in Asia and the Pacific

CE 055 952

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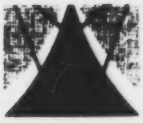

Regional Co-Operative Programme in Higher Education
for Development in Asia and the Pacific

Higher Agricultural Education and Rural Development in Developing Countries in Asia and the Pacific

Gil C. Saguiguit, Jr.

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Chapter One

INTRODUCTION

The period after the Second World War saw the proliferation of institutions of higher learning in agriculture throughout Asia and the Pacific. Many schools, colleges and institutes of agriculture were established and later elevated to degree-granting institutions. Existing faculties and colleges were reorganized and expanded. Some evolved into universities offering various degree and non-degree programmes in agriculture and its related fields.

As the number of centres of learning for agriculture increased, so did their responsibilities extend beyond the traditional role of instruction. The needs of their respective patronage areas demanded from these institutions more active participation and involvement in activities aimed at the attainment of agricultural and rural development. Thus, they assumed an additional dimension – that of centres of research and extension to effect co-ordinated efforts for development.

In recent years, much attention has been given to the importance of agricultural colleges and universities as national development agencies. Government leaders and policymakers have begun to realize the multifarious roles of these institutions as agencies whose responsibility is not only to train needed manpower for national development programmes but also to undertake research and extension to achieve self-sufficiency in food production. Financial support from national budgets and foreign loans and grants has provided for the development of the instructional, research and extension programmes of these colleges and universities. In fact, in some countries, such programmes have been integrated into the national agricultural development system.

While the role of agricultural institutions in promoting rural development has been explicitly identified, there arises the question

of whether these centres of learning have indeed oriented their programmes toward this identified role. There now exists a felt need to examine how colleges and universities of agriculture in the Asia-Pacific region have integrated rural development into their academic, research and extension programmes. In the same way, it has become necessary to identify and examine the capabilities and constraints faced by these institutions as they work toward rural development.

Chapter Two

OBJECTIVES

The general objective of the study is to examine the academic, research and extension programmes of agricultural institutions of higher education in the Asia-Pacific region in order to determine the extent of their involvement and participation in promoting rural development.

The specific objectives of the study are to:

1. Determine the perceived mission/goals and beliefs of selected agricultural institutions in the region based on their instruction, research, and extension activities;

2. Determine the extent to which topics on rural development, community development and extension education have been integrated in the academic curricula of selected agricultural institutions as well as the development of instructional materials for these areas;

3. Identify relevant researches and extension activities in rural development undertaken by the selected agricultural institutions;

4. Identify problems/constraints experienced by these institutions in performing their functions of instruction, research and extension; and

5. Identify the institutions' priority areas of concern as well as future programme areas which would allow for collaborative efforts in rural development among institutions.

Chapter Three

METHODOLOGY

Prior to the actual data gathering, relevant literature on the subject matter were reviewed. This exercise proved beneficial especially in the formulation of the survey instrument, the identification of agricultural colleges in the region, and the preparation of the sampling design and procedure.

Primary data for the study were generated through questionnaires sent to selected agricultural institutions in the developing countries within the Asia-Pacific region. The survey questionnaire (Appendix I) was formulated in close consultation with one of the authors of a similar study conducted in 1984 entitled "The Involvement of Asian Association of Agricultural Colleges and Universities (AAACU) Member-institutions in Agrarian Reform and Rural Development."

Prior to its finalization, the questionnaire was pretested by administrators of seven institutions of higher learning in agriculture, who attend UNESCO's Regional In-Service Training for Teaching Personnel in Higher Education in Agriculture held at SEARCA in July 1985.

Experience indicates that response to mailed questionnaires is generally low. In order to offset the anticipated low returns, a sizeable number of institutions from the majority of developing countries in the Asia-Pacific region were included in the survey. No less than 65 respondent institutions from 16 developing countries were surveyed (Appendix II). Furthermore, based on the standards of surveys of this nature, a 30 per cent recovery rate from over half of the countries sampled was considered large enough to provide the necessary data for this study.

In this survey, the number of institutions sampled in a given country was dependent on such factors as size of country, number of

agricultural institutions located in the country and ease of communication. For example, India accounted for more respondent institutions because it was relatively larger than other countries and had more agricultural colleges and universities. On the other hand, countries like Nepal, Sri Lanka and Bangladesh had only one or two agricultural schools, hence had fewer respondent-institutions.

Follow-up letters and additional questionnaires were sent to institutions that failed to respond to the original request to participate in the survey. Of the 65 questionnaires mailed to 16 countries, 28 (43.1 per cent) were answered and sent back by ten countries (62.2 per cent), namely: India, Indonesia, Malaysia, Nepal, Papua New Guinea, the Philippines, Singapore, South Korea, Sri Lanka and Thailand.

Chapter Four

FINDINGS OF THE STUDY

Nature of the respondent-institutions

The majority of the respondent-institutions may be described as government supported, agricultural colleges or general universities (Table 1). Of the 28 surveyed institutions, 89.28 per cent were funded by their respective national governments while the remaining 10.7 per cent were privately supported. More than half (64.3 per cent) had agriculture as the primary focus of their academic curriculum. About a third or 35.7 per cent were general or comprehensive universities offering agriculture as a course. One respondent did not offer agriculture as a course but placed emphasis on the biosciences and other related areas of agricultural importance.

Table 1. Nature of the surveyed colleges and universities (n = 28)

Nature of institution	No. of respondents	Per cent
Government supported	25	89.28
Private supported	3	10. 7
Predominantly agriculture	18	64. 3
General/comprehensive university but offering agriculture as course	10	35. 7
Offering baccalaureate/4-year degrees	28	100. 0
Offering diploma courses	13	46. 4
Offering post-graduate work	24	85. 7
General/comprehensive university not offering agriculture as a course but with emphasis on bioscience courses and areas of agricultural importance.	1	3. 6

Perceived missions and statements of beliefs

The perceived missions/goals by the majority of the surveyed institutions were found to be generally aligned with the basic trilogy of functions of an agricultural college or university, i.e., instruction, research and extension.

On the basis of the responses, the perceived missions/goals of the the respondent institutions which garnered the highest frequency count (Table 2) may be summarized as follows to: (1) train and instruct students in agriculture, science and technology improvement, consistent with the needs of the rural people and the economic well-being of the country; (2) initiate relevant research and advanced studies in agriculture and its related disciplines for improved production, consumption, and renewal of natural resources; and (3) provide continuing off-campus instructional education and extension services to meet the needs of rural residents and improve their quality of life.

Several institutions were concerned with producing responsible, productive and desirable citizens by developing the intellectual and creative powers, leadership potentials, skills and talents among its students. Only one institution surveyed aimed to develop appropriate inter-institutional linkages, educational opportunities and service programmes to meet the institutional development needs of agricultural colleges and universities in the region.

Table 2. Mission/goals of the surveyed colleges and universities (n = 28)

Mission/goal	Frequency
To develop appropriate inter-institutional linkages, educational opportunities and service programmes to meet the institutional development needs of agricultural colleges and universities in the region.	1
To provide continuing off-campus education and extension services to meet the needs of rural residents and improve their quality of life.	16
To produce responsible, productive and desirable citizens by developing intellectual and creative powers, leadership potentials, skills and talents among students.	3

Table 2. Mission/goals of the surveyed colleges and universities (n = 28) (cont'd)

Mission/goal	Frequency
To instruct and train men and women in agriculture, science and technology improvement, consistent with the needs of the rural people and the economic well-being of the country.	23
To initiate relevant research and advanced studies in agriculture and its related disciplines for improved production, consumption and renewal of natural resources.	12
To encourage and support multisectoral and interagency efforts for the integrated development of rural communities through innovative educational research and extension programmes in resource management.	2
No response	2

The perceived missions expressed by the surveyed institutions were greatly influenced by their respective philosophical orientation or beliefs (Appendix III). For example, almost all of the respondent-institutions believed that agricultural schools should contribute to national development; that the instruction, research and extension functions should be complementary, closely related and mutually reinforcing; and that rational and relevant agricultural and rural development policies and technologies should be the end result of viable research activities. The majority also agreed with the philosophy that agricultural institutions should interact for exchange of ideas and results to be more effective in uplifting the conditions of rural folks for a life of happiness and dignity.

A number of respondents chose to be neutral regarding particular statements of beliefs. For example, the Gadjah Mada University of Indonesia was neutral on the statement that it is not the business of an agricultural college/university to respond to the development needs of the rural population. The Paradeniya University, Sri Lanka, expressed neutrality over the statement that human resources are the most important factor of development and the state of their development and well-being reflects the overall national development. The same stand was taken by the Central Mindanao University, Philippines, on the following statements: an agricultural college/university

should consider agricultural and rural development as areas of concern in its teaching, research and extension activities; and, women should participate and contribute on an equal basis with men in social, economic and political processes of rural development and share fully in improved conditions of life in rural areas.

The Central Luzon State University, Philippines, neither agreed nor disagreed with the statement that the development efforts of an agricultural university/college should be responsive to the varying needs of the rural poor in its service area. It, however, disagreed with the belief that an agricultural college/university should extend its institutional resources and capabilities to help resolve the problems and needs of other agencies (public and private), as well as the general public. The Central Mindanao University, the National University of Singapore and the Tribhuvan University of Nepal were all neutral on the statement that an agricultural college/university be involved in the formulation of policies and programmes affecting agricultural and rural development.

Only one institution, the Seoul National University of Korea, expressed the belief that the improvement of rural living should not be the concern of an agricultural college/university nor should it engage in research and extension as this would sacrifice its instruction function. The Chung Nam National University, Korea, believed that it is too much to expect of an agricultural college/university to reorient its instructional, research and extension objectives and goals toward the harnessing of its institutional capabilities to respond effectively to changing rural development needs.

Extent of involvement in the promotion of agricultural and rural development

Instruction. In the area of instruction, the extent of involvement of the surveyed schools was reflected in their course offerings and in the instructional materials that they had developed for the said courses (Table 3). About half of the 28 surveyed schools offered courses in extension education (53.6 per cent) and community development (46.4 per cent). Of lesser but nevertheless significant percentage were institutions which offered courses in rural development (39.3 per cent). The majority of these courses were offered on or before 1980 as required undergraduate and graduate courses (Appendix IV). Undergraduate courses as referred to in this

paper are courses offered in bachelor degree programmes, while graduate courses are those pursued in advance degree programmes, e.g., MS or Ph.D.

The different categories of 230 undergraduate and 170 graduate courses covering such areas as agricultural education and extension; agricultural and rural development; agricultural economics, finance and marketing; food, nutrition and population; and technical agriculture have incorporated a minimum of 1 to a maximum of 49 topics listed in the questionnaire (Appendix V). The courses which included the most number of topics were Agricultural Economics, Finance, Marketing and Prices (15.2 per cent), Extension/Extension Education (14.9 per cent) and Agricultural and Rural Development (11.5 per cent). The predominance of Agricultural Economics subjects is consistent with the findings of UNESCO (Atal, 1982) who noted that this was one of the first agricultural subjects introduced in agricultural schools of Indonesia, Japan and other Asian countries. Hence, it is natural that most courses in the curricula of agricultural schools would fall under this category.

On the other hand, topics most commonly integrated into the different courses were those containing the objectives of national development, principles of rural development, and credit and institutional credit systems for rural development (Appendix VI).

The integration of rural development in the instruction programmes of the surveyed schools was also reflected by the instructional materials that they had developed for courses on rural development, community development, extension education, and other related subjects (Table 3). The survey revealed that 30 per cent of the 28 respondents had developed instructional materials, 33 per cent had plans to develop materials; and 37 per cent had not yet developed any materials or had no response.

Most of the materials that had been developed by the respondents were on extension education and subjects related to rural development such as crop science, animal science, agricultural economics and research methodologies. Instructional materials on rural and community development *per se* were fewer in number. A total of 44 instructional materials had been developed, 10 of which were books (22.7 per cent), 4 (9.1 per cent) monographs, 19 (43.2 per cent) modules, 9 (20.4 per cent) syllabi, and 2 (4.5 per cent) audio-visuals. A detailed list of the titles of these instructional materials and their subject category are given in Appendix VII.

Table 3. Availability of courses and instruction materials in rural development (RD), community development (CD), extension education (EE) and related studies (RS) in the surveyed institutions. (n = 28)

Institution	Country	RD	CD	EE	RS
Andhra Pradesh Agricultural University	India				
Cagayan State University	Philippines				
Central Luzon State University	Philippines	X	X	X	X
Central Mindanao University	Philippines	X	X	X	X
Chiangmai University	Thailand	X	X	X	X
Chung Nam National University	Korea				
Don Mariano Marcos Memorial State University	Philippines			X	
Don Severino Agricultural College	Philippines				X
Gadjah Mada University	Indonesia	X	X	X	X
Gorakhpur University	India	X	X	X	X
Isabela State University	Philippines	X		X	X
Maejo Institute of Agricultural Technology	Thailand	X	X	X	X
Marathwada Agricultural University	India		X	X	X
Mariano Marcos Memorial State University	Philippines				
Mindanao State University	Philippines		X		
Mountain State Agricultural College	Philippines			X	X
National University of Singapore	Singapore				
Palawan National Agricultural College	Philippines	X	X	X	X
Pampanga Agricultural College	Philippines				
Peradeniya University	Sri Lanka	X	X	X	X
Seoul National University	Korea	X		X	X
Southwestern University	Philippines				
Tribhuvan University	Nepal				
University of Eastern Philippines	Philippines		X		
University of Papua New Guinea	Papua New Guinea				
Universiti Pertanian Malaysia	Malaysia	X	X	X	X
Visayan State College of Agriculture	Philippines		X	X	X
Xavier University	Philippines				
Total		11 (39.3%)	13 (46.4%)	15 (53.6%)	15 (53.6%)
Institutions who have developed instructional materials		6 (21.4%)	6 (21.4%)	9 (32.1%)	6 (21.4%)

The obvious inadequacy of instructional materials for the teaching of development-oriented courses and related subjects is an important problem which must be given due consideration. The inadequacy of such materials, both in quantity and quality, will have to be corrected if the institutions of learning are to be effective in their instructional programmes. The importance of instructional materials in an institution's development efforts cannot be overemphasized. These materials are sources of vital information which aid and supplement in students' formal education. In addition, they provide a channel through which the findings of research and important information from the institutions of higher learning find their way to the greatest number of the populace (usually in rural areas) who are in a position to utilize and benefit from such findings. In essence, the production of quality instructional materials in quantities adequate for students as well as clientele in rural areas is an all-important factor which may contribute to the institutions' goal of creating impact in the development of rural areas.

Complementary to this problem is the seeming lack of facilities and skilled manpower for the production of instructional materials among the majority of surveyed institutions. An organized unit/department for the production of needed instructional materials should be part and parcel of any institution of higher learning. The fact remains, however, that budgetary constraints prevent the building up of the needed facilities and the development of skilled staff and 'content experts' to run these specialized units. This is a problem which the institutions must address themselves to and must be given due priority in their development plans.

Educational programmes must be considered as an integral part of all rural development activities. In many instances, the success of development efforts depends on the availability of well-trained agriculture personnel. People who run the different rural development services such as agricultural extension, research, credit and co-operatives are usually those who were trained in agricultural schools and colleges. The key role being played by these institutions in providing pre-service training cannot be overemphasized.

The colleges/faculties and universities of agriculture are the institutions that produce the professional agriculturists. In Southeast Asia, the number of such institutions may be adequate. In the Philippines there are more than 40 of them; in Indonesia, 24; in

Thailand, 15; and in Malaysia, only one. In fact, Saguiguit (1981) estimated that only eight are needed in the Philippines; six in Thailand, and 12 in Indonesia. Only Malaysia may have the need to establish more institutions. Appendix VIII shows the majority of colleges/faculties and universities in the Southeast Asian region which offer the bachelors' degree programmes in agriculture and, in some instances, the master's and doctorate programmes. Those institutions which may be able to produce the required high-level manpower needs of the respective countries may be chosen from the list. The estimates of the number of institutions for each of the four countries correspond to the perceived regions in those countries where agricultural development should receive greater concern. Data for estimates of the number of institutions required in other countries in the Asia-Pacific region are unavailable. However, in such countries as Nepal, Bangladesh, Sri Lanka and Papua New Guinea where there is an obvious dearth of agricultural institutions to produce high level manpower in agriculture, the situation is the reverse. The development plans of the mentioned countries should include the establishment of institutions of higher learning in agriculture as a priority. Except in the Philippines where there are a number of privately-supported institutions, usually by religious groups, all the institutions are state-supported.

A common criticism levelled against institutions of higher learning in agriculture is that they produce graduates who are not development-oriented. This is so because their curricular offerings, the main tools for training professional agriculturists, have been following the traditional and classic pattern of pursuing knowledge within the confines of the classroom, laboratories and experiment stations where conditions are artificial and controlled. There is very little skill development and hardly any exposure to actual and real situations of farming. Problems are hypothesized and solutions thereto are on the basis of tests of significance; or that the findings on plot or experimental plot culture are extrapolated to the hectare basis.

To produce truly development-oriented graduates, as much of the last two years of the four-year training curriculum may be devoted to participatory experiences on the experimental farms and in farmers' fields. The best kind of training for agricultural development is actual participation in the multifaceted task of farming as

carried out by the farmers under actual conditions. The students will see at play the various principles and variables which they learn during the initial two years of their college education; they will see farming in totality rather than as a sectionalized endeavour where each discipline plays a total role in each section. Agricultural development demands bold innovations, creativeness and sometimes very unorthodox ways. There should be no fear in making radical departures or deviations from the traditional college training. In fact, a number of institutions have taken the cue and have embarked on extension programmes that provide for practical learning of students in farmers' communities and farmers' fields. A detailed discussion of the mentioned programmes is presented in the section on extension.

Another criticism levelled at the professional training programmes is the tendency to get students to specialize at the bachelor's degree level. There is, for example, the thesis requirement which must be satisfied in the major discipline of studies. Being a requirement of the training curriculum, the thesis should be considered as a training device to develop scientific attitudes and to equip the students with the skills and abilities to make observations, judgements and choices. The bachelor's degree programme should produce people who are generalists and not specialists.

A study of the necessity of a thesis as a requirement at bachelor's degree level seems to be in order. Perhaps intensive field work coupled with production courses would be a better prescription than the thesis. However, the thesis as a requirement has a place at the graduate level (master's and doctoral programmes). It develops incisiveness, depth, objectivity, independence, and high level of personal discipline and commitment.

It may be worth considering and trying an alternative which would imbue students with the same values and competencies that they are expected to derive from the specialization and thesis requirements. Such a scheme may be grouping students during their last curricular year to undertake an agricultural development project. Each student will then be required to submit a complete documentation of his experiences, which would include such things as problems encountered and problem analysis/solving, and participation in decision-making, resource allocation and accomplishments in

performing manipulative jobs like land preparation and fertilization. A graduate of this scheme then will have a complete documentation of his activities in 'rice farming' rather than a specialized topic like 'rice breeding'. However, if the academe insists on a thesis then a group of students, who were similarly placed, can produce the manuscript as a group. After all, the team approach is seen to be one of the more important features in the emerging development patterns.

Most agricultural colleges and universities, including those surveyed, are only now beginning to focus attention on the long-neglected provisions for the development of managerial and business skills among students; another area similarly neglected is post-harvest technology. Farming has become more and more of a business enterprise necessitating managerial and business skills among graduates of agriculture. The curricula of the majority of the surveyed institutions show a strong concentration on production-oriented courses notwithstanding the increasing necessity for courses on post-harvest technology including storing, processing, trading and distribution and consumption of agricultural commodities. These are integral components of the total agricultural commodities systems. Corrective measures must be taken to alleviate this inadequacy.

Graduate education in agriculture provides for specialization and a high level of professionalism. In most of the developing countries of the region, the graduates of advanced degree programmes generally occupy top leadership and key positions. The majority of these graduates join institutions of higher learning in agriculture and are availed of by government and the international community as consultants, advisers and experts. In the Asia-Pacific region, as a whole, there is a need to establish more institutions that offer advance degree programmes. Graduate training in these few institutions is more relevant, less expensive and as good if not better than any offered elsewhere. It may be said that graduate training in the region has, to a certain extent, assisted to arrest the so-called brain drain.

Research. As major function of an agricultural college/university, research endeavours to generate solutions to problems confronting the rural poor. It aims to develop essential technologies that answer problems related to agricultural and rural development. These broad statements of research mission suggest the establishment of strong and effective research programmes in order to come up

with viable and highly innovative technologies useful to the common people, thus ultimately improving their standard of living. Research as carried out in the colleges and universities of agriculture is undertaken by the staff and graduate students. Both the basic and applied types of research studies are necessary, but for purposes of developing appropriate technology and solutions to multifarious problems of agricultural development, the latter type should be promoted. The college or university researchers should establish linkages with the national and international research systems. These linkages will prevent unnecessary duplication of efforts and expenditure of resources. Chua (1986), in a paper presented at a Regional Seminar on Higher Education in Agriculture and Rural Development, stated that the research which a university conducts generates knowledge on development strategies and critical information is made available for decision in the allocation of scarce resources for development. This, he explains, gives a university a sense of purpose.

Although the majority of the surveyed universities/colleges agreed that this is the general mission they should address themselves to (see section on Perceived Missions/Goals), it is nonetheless necessary to determine the extent to which they had integrated this goal in their respective research projects and programmes.

A total of 187 research titles in ten given research areas in rural development were generated by the 28 surveyed institutions (Appendix IXa). A detailed list of research titles is presented in Appendix IXb. Of the 187 research studies undertaken by the 28 respondents, 20.8 per cent were on the adoption and improvement of location-specific technology suitable for small producers and co-operatives. The next most frequently researched subjects were on the socio-economic implications of of technological change (14.4 per cent), rural development (13.9 per cent), harvest and post-harvest losses and storage (12.3 per cent) and machine tool development for small farmers (12.3 per cent). Over half of the 28 respondents had conducted research studies in fave out of the ten research areas listed.

The least researched subjects were on the participation of women in economic, political and social activities (2.1 per cent) and the participation of women in production activities (2.7 per cent).

While the findings of the survey seem to indicate that the majority of the surveyed institutions have placed emphasis on

research areas which seek to develop technologies for small farmers, the fact is, there are areas of equal importance which have been neglected. For example, very few of the institutions have focused on research on development strategies and technology delivery systems. This is a very important area, for without effective means of delivering information to the grass roots, the findings of research may not be utilized. Already, this is fast becoming a reality. It is unfortunate that in Southeast Asia, and other parts of the Asia-Pacific region, it has been generally observed that information from agricultural research is underutilized and often times lies dormant in laboratories and experiment stations (Saguiguit, 1985). And research results that do reach the beneficiaries, i.e., farmers, extension workers, etc., are just a small part of the total information generated in the field. Corollary to this problem is the need to package technical information into a language that farmers can understand. In this particular aspect, the importance of field trials and demonstrations on farmers' fields cannot be overemphasized. Research and expertise in these areas have yet to be developed.

A number of institutions indicated minimal activities in research. They cited lack of resources, both financial and human, as the primary reason for their inability to conduct effective research. Southwestern University in Southern Philippines, for example, did not conduct any study that can be included in the ten given research areas. This institution is not unique in this country. Perez (1986) reports that, in the period between 1972 and 1985, a number of former vocational agricultural schools in the Philippines became chartered state colleges and universities (SCUs). The SCUs offer similar B.S. Agriculture curricula of varying degrees of capability; however, very little, or no research activity at all is undertaken nor is there capability for such function. This is the same sad state that exists for a number of agricultural institutions in the region. While they recognize research as one of their major functions, the majority of agricultural institutions have very little resources to be effective in this particular endeavour.

The survey also revealed that, of the 187 researchers in the ten research areas, 72.2 per cent were conducted in the Philippines, 7.5 per cent in Korea, 6.9 per cent in Thailand, 5.0 per cent in Nepal, 2.1 per cent each in Indonesia and Papua New Guinea, 1.6 per cent each in Sri Lanka and India and 1.0 per cent in Malaysia. An

important note must be made regarding these statistics. The total number of researches listed under a given country is directly proportional to the number of institutions which responded in that particular country. Thus, the survey reported more researches in the Philippines than in India, while in reality and concededly, the reverse is true. The discrepancy lies in the fact that there were more institutions which responded in the Philippines than in India, and hence, more researches were listed. The same tendency would apply to comparisons with other countries.

The information generated by these studies was disseminated by the respondent institutions primarily through the print media (50.0 per cent) such as technoguides, brochures, pamphlets, books, reports, and newsletters (Table 4). Other modes of information dissemination were the mass media (46.4 per cent) and training, workshops and conferences (46.4 per cent). The least used method was the regular course offerings (21.4 per cent). These findings imply that while the surveyed institutions have started to disseminate research findings through various media, the majority have to establish more courses which impart knowledge and information generated by their researches. Institutions which are sincerely exerting effort to successfully bringing important information to the greatest number of end-users should begin to consider doing so through a channel where they are concededly most effective, i.e., instruction and regular courses.

Table 4. Modes of disseminating information to end-users by the surveyed institutions (n = 28)

Modes of dissemination	No. of institution	Per cent
Print (technoguides, brochures, pamphlets, books, reports, newsletters)	14	50.0
Mass media (radio, TV)	13	46.4
Training, workshops, seminars, conferences	13	46.4
Demonstration farms/exhibits	11	39.3
Change agents	10	35.7
Regular course offerings	6	21.4

Extension. Universities undertake research to generate knowledge and information which the greater mass of people, i.e., small farmers, need to pull themselves out of a depressed condition. The universities' function, however, does not stop here. To complete the cycle, the information should be transferred to its clientele after which reaction on such is examined and new methods are devised. And so on the cycle goes.

State-supported agricultural colleges/universities are the principal sources of new knowledge and technologies and at the same time, a direct link to the farmers in disseminating and using new technologies, Perez (1986) states. These tasks are accomplished through their respective extension services in co-operation with the government extension service of a particular country.

The extension function of most of the surveyed schools is the responsibility of an extension unit/department usually under the institution's Faculty of Agriculture. To an increasing number of institutions, however, extension has become the responsibility of a specialized office/centre created specifically for research and training in rural development. An example is the Don Mariano Marcos Memorial State University (DMMMSU) in La Union, northern Philippines, wherein extension activities are undertaken by its Rural Development and Training Centre (RDTC). In Kasetsart University, Thailand, extension is the task of the Office of Extension and Training under which the National Agricultural Extension and Training Centre operates. The office operates on its own budget and is considered in the level of faculties which compose the university. More schools are veering toward this set-up. It has been observed that such specialized offices/centres have proven to be quite effective in undertaking rural development activities. This is primarily because they are well organized, better equipped, and undertake activities which are more focused on and programmed toward specific objectives in rural development.

Most of the surveyed institutions were also involved in outreach or public service programmes as a means of articulating their extension function. The target clientele, composed of farmers, rural housewives, out-of-school youth, development workers, field technicians, and development planners in agriculture, was estimated to range from 200 to 20,000 persons.

Outreach may be described as the collective co-operative effort development between an educational institution and the community it serves. The association between the agricultural school or college and the community at large is beneficial to both parties. Benefits for farmers and rural organizations come in form of access to new information and technologies. The institution, on the other hand, is given the opportunity to be more directly involved with farming at the grass roots level and with the problems of the rural community. The lessons and experiences gained may then be incorporated into the school's instructional programme.

An outreach programme may include such activities as providing technical agricultural information and advice to farmers and other organizations through staff visits and newsletters; establishing field trials and demonstrating improved farming methods on the school farm or farmer-co-operators' fields; assisting in the formation of rural organizations and clubs, and providing facilities for meetings, workshops and conferences; and sharing school facilities, including farmland, equipment, and transportation with rural people.

More than half of the respondents indicated that the major portion of their extension activities consisted of in-service training in agriculture, providing specialist support, teaching farmers about integrated farming, and conducting short-term and non-degree training programmes (Table 5a). As much was said by Perez (1986) when he reported that even the most active and qualified (agricultural) institutions perform at best only a training and supportive role to the government. This is true at least in the Philippines. It is evident, however, that the same pattern is true also in Thailand, where rural development efforts are borne by the Ministries of Education, Health, Interior, and Agriculture and Co-operatives (Sujin, 1986). The trend is even more apparent in other developing countries such as Bangladesh, Nepal and Sri Lanka where the extension arms of their agricultural institutions are not as well developed and have scarce resources to conduct actual field activities. They are therefore relegated to disseminating technical information in agriculture. Sometimes they cannot even be effective on this because they simply do not have the facilities nor the necessary funds.

Table 5b presents in detail particular extension activities which some of the surveyed institutions did not engage in. For example, Peradeniya University and Southwestern University performed only

one of the 18 activities listed in the survey questionnaire, i.e., providing specialist support and selecting and collating practical and appropriate technology, respectively. Gadjah Mada University (GMU) and Xavier University, on the other hand, were able to perform all the extension activities listed, except for one; GMU was not able to provide in-service training in agriculture and related areas in support for national food programmes of Indonesia while Xavier University was not able to maintain extension communication services for information dissemination and public service.

Table 5a. Extension activities and degree of implementation by the surveyed institutions

Extension activities	Extent performed*				Total score
	M	S	L	NA	
a) Conduct short-term and non-degree training programmes.	12	10	1	2	82
b) Select and collate practical and appropriate technology.	10	10	4	1	80
c) Establish inter-agency linkages with government and non-government organization.	8	9	7	1	74
d) Develop appropriate training materials, designed to upgrade the technical and managerial skills of extension technicians along the lines of implementing rural development project.	9	8	5	3	73
e) Develop appropriate training materials designed to upgrade the technical and managerial skills of small farmers along the lines of implementing rural development projects.	10	8	5	2	76
f) Develop and recommend policy guidelines to appropriate bodies, i.e. the Ministry of Agriculture or similar organization/agencies in the area of agricultural and rural development.	3	10	8	4	62
g) Develop approaches/innovations pertaining to rural development processes.	6	9	6	4	67

* M - much (4); S - some (3); L - little (2); NA - not at all (1)

Table 5a. Extension activities and degree of implementation by the surveyed institutions (cont'd)

Extension activities	Extent performed*				Total score
	M	S	L	NA	
h) Conduct pilot projects in agricultural and rural development.	9	11	4	1	79
i) Support national food programmes by providing in-service trainings in agriculture and related areas.	15	4	4	2	82
j) Package agricultural support/services.	9	6	6	4	70
k) Provide specialist support.	14	6	3	2	96
l) Provide extension programmes to support women's roles in activities of agricultural production.	4	7	9	4	59
m) Promote income-generating opportunities for rural women.	4	6	6	9	55
n) Promote collective action and organization by rural development.	4	6	6	9	55
o) Conduct trials, demonstrations and experiments with farmer co-operators.	10	10	5	0	80
p) Maintain extension communication services for information dissemination and public service.	10	8	6	1	77
q) Teaching farmers about integrated farming.	14	4	7	1	83
r) Monitoring and evaluation of extension programmes	8	10	6	1	75
s) Other extension activities not included in above list:					
Infrastructure development		1			3
Credit union		1			3
National service schemes		1			3
Seed dispersal	1				4

Table 5b. Some extension activities rarely or not performed by the surveyed institutions

Institution*	Extension activities**							
	a	b	c	d	h	i	k	p
Cagayan State University			X	X				
Chiangmai University		X					X	X
Don Mariano Marcos Memorial State University			X	X				
Gadjah Mada University						X		
Gorakhpur University		X	X	X		X	X	X
Maejo Institute of Agricultural Technology			X			X	X	
Mindanao State University		X	X	X	X	X		
Peradeniya University	X	X	X	X	X	X		X
Seoul National University				X	X		X	X
Southwestern University	X		X	X	X	X	X	X
Tribhuvan University	X	X	X	X				
University of Eastern Philippines					X			X
University of Papua New Guinea		X		X	X	X		
Xavier University								X

* Institutions not listed performed the extension activities cited above.

** Table 5a lists the activities.

The observation that the primary focus of school extension programmes is on trainings and technical support is supported by the finding that approximately 12,711 clients participated in the various training programmes conducted in 1984 by the 28 respondent institutions. Of these, 35 per cent were farmers; 12.1 per cent, rural youth and 8.8 per cent, development planners. There were no trainings reported for policy level personnel in rural development (Appendix X). The highest participation was registered by trainings on "Integrated Farming Systems," followed by "Monitoring and Evaluation of Agricultural Technology" and "Training on Agricultural Innovations and Technology."

The conduct of training, workshops and meetings for policy level personnel, both in government and in agricultural institutions, is seen as a significant step in achieving agricultural and rural development. However, training programmes of this nature were observed to be lacking among the surveyed institutions. Since most agricultural institutions are government supported, efforts from policy-makers to link national programmes to similar activities of agricultural colleges and universities may be mutually beneficial. The potential of agricultural institutions as agents of development for the government must be tapped and strengthened. The establishment of working ties between the two would help bring about a more concerted effort toward development.

While it may be noted in Tables 5a and 5b that the extension activities of most of the surveyed institutions focused on training and technical support, a significant number of schools conducted field action projects as integral parts of their outreach and formal instructional programmes. The objective of field action projects was to develop approaches and innovations pertaining to rural development processes, test these processes on a pilot scale and develop critical delivery and support systems. Students were generally involved in such projects to be taught or to learn on a realistic level. The majority of the 28 schools allowed students to work in these projects as part of their laboratory/field practice (47.2 per cent), as their thesis problems (33 per cent) and as an internship type of learning experience (19.4 per cent) (Appendix XI).

Universiti Pertanian Malaysia, for example, gives its students and staff an opportunity to get involved in an Extension Laboratory in Sarawak (Khalip, et al. 1986). Non-formal and formal educational activities as well as research are integrated. Senior students in the human development programme are required to plan, implement and evaluate extension programmes in the villages assigned to them. In Thailand, a similar approach is used. As agricultural educators of Thailand say, no other type of organization has the capability of collecting data on a large scale except for universities through its students (Sujin, 1986).

Along these lines, it is noteworthy to cite a novel outreach/extension strategy presently being undertaken in seven Philippine agricultural colleges. The Agricultural Education Outreach Project (AEOP), as it is known, is undertaken by the Philippine government

with funding support from the United States Agency for International Development (USAID). Its basic concern is the meaningful integration of students' practical training into the learning process, the conduct and utilization of research, the transfer to small farmers of relevant farm technology, and the delivery to rural inhabitants of beneficial outreach services.

The AEOP also seeks to strengthen the resources of the colleges to enable them to provide quality education to children of poor country dwellers. At the same time, it opens venues through which government extension agencies could work with colleges on development projects on a complementary basis.

The uniqueness of the project lies in the use of student outreach agents to effect rural development and the establishment of income-generating ventures by students on-campus or in the 'barangay' or village demonstration laboratories (BDLs) to serve as training and demonstration modules. These projects, financed by the AEOP Student Loan Fund, are jointly undertaken by students and the farmer-co-operators. In the process of working out these projects, it is expected that a sequential transfer of technology from students to farmers and eventually to other members of the community shall be effected.

The anticipated cumulative impact is for the majority in the village to adopt desirable farm practices and to initiate viable village entrepreneurial activities – which should redound to better income and consequently, a better life for the urban poor.

Another strategy for integrated agricultural and rural development which a number of agricultural institutions in Southeast Asia are implementing is the Social Laboratory. This strategy was developed by the Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA) and the University of the Philippines at Los Baños in pilot areas throughout the region. The concept has rapidly gained advocates and, in fact, its influence may be felt in the extension programmes of agricultural institutions not only in the Philippines but also in Indonesia, Malaysia and Thailand. The approach may appear in modified forms and known by different names, but the basic working principles are ever present.

The Social Laboratory addresses itself to the observation that in most developing countries in the region, the findings of research

are underused and oftentimes remain in the confines of laboratories and experiment stations. Only a minute portion of this body of knowledge reaches its intended users, i.e., the farmer-cultivators, extension workers, people involved in rural development work, etc. Even worse is the situation wherein an equally small amount of available technology is actually converted to production accomplishments to benefit the marginal farmers. It has therefore become increasingly important to explore, test and develop new agricultural development strategies which ensure the effective delivery of a continual flow of agricultural technology and tested recommendations. The Social Laboratory, according to its proponents, is a means to achieve this particular end. It employs the direct involvement of the target populace in order that the recommendations may be more attuned to their needs and more widely accepted. The development workers are trained in new instructional methods and techniques so that the people may be educated on the ways to help themselves and attain economic and social improvements.

In essence, the Social Laboratory is a pilot project in agricultural and rural development conducted by an institution of higher learning with emphasis on the development of people for training and demonstration purposes. In other words, the institution implements this project so that its staff and students may observe and study the development process in its natural setting. On the other hand, the village people are given a chance to improve their quality of life through certain inputs and valuable information provided by the implementing institution. They are trained, organized and assisted to the extent that they can do things by themselves through self-governing, self-supporting and self-perpetuating village-based organizations.

The concept of mobilizing local people into viable and functional organizations in order that they may assimilate new technologies and take a direct hand in the upliftment of their living conditions has gradually gained popularity among agricultural institutions in Southeast Asia. Extension programmes oriented toward action research more often than not have local people involvement as a major component. This ensures that the technology being tested and eventually transferred is attained and relevant to the needs of the target populace.

The advent of innovative strategies and approaches to agricultural and rural development in the extension programmes of an increasing number of agricultural institutions is quite encouraging. It puts forth the observation that aside from moving beyond the traditional role of on-campus instruction to wider extension and research responsibilities, universities and training and research centres are taking on a new dimension – that of involvement in activities geared towards co-ordinated programmes in agricultural development in the region.

Sources of funds for instruction, research and extension

The respective national governments provided the primary financial support for the instructional, research and extension activities of the surveyed institutions (Table 6). Local and international donors and research-funding institutions also provided support but the majority of schools indicated that the bulk of these funds went to research and extension. Among the donors cited were local research councils, science boards and development foundations; Ford Foundation; International Development Research Centre (IDRC), Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA); United States Agency for International Development (USAID); World Bank; private business firms and other foreign agencies.

Table 6. Sources of funds for instruction, research and extension of the surveyed institutions

Fund source	No. of times expressed		
	Instruction	Research	Extension
National Government Appropriation	27	26	24
International Donors/Research Funding Institutions	4	24	18
Non-government, non-institutional/ private business firms/external development agencies	3	8	3

Rural development priorities

The 28 surveyed institutions indicated their priorities in the areas of research extension and training. Research priorities were on improvement of crop and livestock production (25.5 per cent), followed by farming systems (15.7 per cent) and integrated action researches (7.8 per cent) (Appendix XIIa). In the extension, the majority of the institutions placed emphasis on effective packaging, transfer/dissemination of innovations and technologies to clientele (48.0 per cent) (Appendix XIIb). Lastly, training programmes given top priority included the development and upgrading of extension personnel (39 per cent) and agricultural skills, technology and farm management techniques for small farmers (21 per cent) (Appendix XIIc).

Problem areas and their implications

An increasing number of institutions of higher education in the Asia-Pacific region have adopted, or are in various stages of adopting, the trilogy of functions of instruction, research and extension (or public service). Their emphasis is on agricultural and rural development as indicated by their priorities and planned programmes. In the process of carrying out these functions, however, the respondent-institutions have encountered a host of problems and constraints. The most frequently expressed problems include: (1) lack of financial support for vital activities; (2) lack of instructional facilities, materials and equipment, experimental fields and support services; and (3) lack of qualified staff and expertise primarily due to the absence or inefficiency of faculty development programmes (Table 7).

It should be noted that these problems are merely a part of a more general need affecting agricultural and rural development efforts in the region. In 1971–1972, SEARCA conducted a survey of the demand and supply situation of university-trained agriculturists in four sample Southeast Asian countries, i.e., the Philippines, Thailand, Indonesia and Malaysia (Saguiguit, 1981). Results of the survey showed that, in all of these countries, there would be a huge requirement for university-trained agriculturists and a subsequent shortfall in their supply beginning 1975 and extending to the 1980s.

Table 7. Problems/constraints encountered in instruction, research and extension by the surveyed institutions

Problems/constraints	No. of times expressed			Total
	Instruction	Research	Extension	
Lack of financial support to carry out necessary and planned activities	5	20	16	41
Lack of instructional facilities, materials and equipment, experimental field, and support services	17	11	6	34
Lack of qualified staff and expertise; slow faculty development programme	7	6	9	22
Absence/lack of necessary linkages with other agencies involved in rural development	0	0	4	4
Heavy enrolment resulting in large classes and increased workload for teachers; high student-teacher ratio	4	0	0	4
Lack of collaborative researches with other universities in the Asian and Pacific region and with other institutions	0	2	0	2
Lack of recognition of the university as an extension agent because there are government agencies traditionally charged with this task/lack of co-ordinator	0	0	2	2
Loss of qualified staff and experts in certain field due to higher paying jobs abroad or elsewhere	2	0	0	2
Method of instruction is overly theoretical and lacks practical or applied information for students	0	0	0	0
Overstaffing due to employment of politicians' proteges	1	0	0	1

Table 7. Problems/constraints encountered in instruction, research and extension by the surveyed institutions (cont'd)

Problems/constraints	No. of times expressed			Total
	Instruction	Research	Extension	
Limited degree offerings	1	0	0	1
Inefficient monitoring and information system	0	0	1	1
Large number of clientele needing varied training	0	0	1	1
Farmers' hesitance to adopt new technology				
Peace and order	0	0	1	1
Total	37	39	41	117

The shortage, though, seemed to be more of an illusion than a reality Actual employment has always been much lower than the anticipated needs for employment, indicating an unrealistic perception of needs. In the Philippines, more and more colleges of agriculture are being established and before long, the shortage, if there is any, is easily supplied.

During the survey in Indonesia, Thailand and the Philippines, most of the university-trained graduates were absorbed by the government sector, school system, and the various offices in the department or ministries of agriculture. In Malaysia, almost 60 per cent of the university-trained agriculturists were employed in semi-government and private agencies.

In a regional seminar-workshop on Higher Education in Agriculture and Rural Development (HEARD) held at SEARCA in May 1986, the participants noted that, despite the projected demand for agriculture personnel, there was still a big number of university-trained agriculturists who have joined the ranks of the unemployed or shifted to other fields of endeavour. One reason could be that the usual employers of these agriculturists such as government offices and schools have since been saturated and can no longer absorb more

people. But the major reason cited was that while agricultural schools continued to produce a lot of graduates, not all of these people have the qualifications and expertise demanded by employers. The quality of the training received by these graduates seems to be in question. There has been a proliferation of schools offering degree programmes in agriculture, forestry, fisheries, veterinary medicine and other allied fields. Many of these institutions, however, have very limited resources, finances and personnel. As a consequence, many such programmes are inadequate, resulting in graduates with insufficient education and training.

In this respect, the predicted shortfall of quality agriculturists has become a reality. At the same time, however, the numerous graduates who do not measure to the standards of the employers have created an artificial 'oversupply'.

A feasible measure adopted by the Philippine Ministry of Education, Culture and Sports to correct this particular problem is the creation of the Technical Panel for Agriculture Education (TPAE) whose responsibility is to rationalize agricultural education in the country. In order to relate agricultural education to national needs, the Panel proposed guiding principles and minimum standards in the curricula of the various degree programmes offered by agricultural institutions. It recommended key areas and minimum subject requirements critical to national development efforts that must be included and met in the various degree programmes. All Philippine agricultural institutions of learning were given a four-year grace period, from 1980 to 1984, to comply with the set standards and requirements.

Needless to say, if other countries were to follow suit, perhaps the turnout of 'quality' agriculture graduates would, to a great extent, be increased.

The massiveness and complexity of agricultural rural development require that appropriate organizations or institutions be built where they do not exist, or that they be reorganized, redirected, reoriented or otherwise modified if they are already existing. This is known as institution building. These institutions should serve to enhance the effectiveness of the task of bringing about greater agricultural productivity and rural prosperity. Aside from providing

training for those who are to service agricultural development programmes and projects, these institutions can assist in planning and implementing agricultural development programmes. Colleges of agriculture can influence and assist in the formulation of agricultural policies and the implementation and evaluation of the same. These institutions can undertake researches which produce technology to solve problems which impede rural progress, and ensure that such technology reaches the end-users.

Whether it be the establishment of new institutions or modification of existing ones, the process should consider four major areas: (a) staff development, (b) programme(s) development, (c) facilities development, and (d) financial support strategy. As in the case of the respondent-institutions in the survey, these four major considerations are also the common problem areas.

Assuming that the need for an institution and its mission, objectives and functions have been determined, the foremost concern is the staff. The persons who will provide leadership must be identified and mobilized. As soon as they are mobilized, they will formulate the programmes that will be used to pursue the objectives. These programmes are then set to operation and needed facilities secured. The viability and growth of an institution and its programmes need continued financial support and so, in the process of developing the staff, programmes and facilities, a broad financial base should be developed. Sometimes a financial support strategy is unnecessary, if the right institution is built and the right staff is recruited, effective programmes are operated and the right yield and pay-offs are obtained, money follows quite automatically.

There are many institutions of higher learning in agriculture in the Asia-Pacific region. They are in various stages of development and governments must now decide which of these existing institutions should get support for further development so that they can better orient their functions of instruction, research and extension toward agricultural and rural development. Further development of these chosen institutions would proceed along the four major considerations earlier mentioned. Those institutions which were not selected should concentrate on the training of technicians or cooperate with the chosen institutions for more practical training, relevant researches and more development-oriented activities.

The foregoing discussion serves to draw attention to the need to:

a) Determine the number and kind of manpower for agriculture development. A survey of the agricultural manpower structure and the agricultural education system should be undertaken. The survey should include not only the supply and demand situation at the professional level but also at the operational and technician levels; and

b) Establish institutions to produce the manpower requirements, and to serve as part of a network for the solution of problems, as well as the removal of constraints to agricultural development; if there are already institutions existing, to reorganize, reorient and modify them, or otherwise strengthen them for agriculture and rural development.

Planned programmes

Within the next five years, the surveyed institutions plan to implement various programmes and projects which aim to promote agricultural and rural development in their respective service areas, regions, and countries. In addition, they have indicated possible areas of collaborative endeavour with other agricultural schools/institutions.

Specific areas given priority by the surveyed institutions were generally on: (1) technology and information dissemination; (2) development of appropriate technology packages for farmers; and (3) conduct of field trials, demonstrations and experiments with farmer-co-operators (Appendix XIII).

On the other hand, the programmes/projects which the surveyed institutions plan to undertake in collaboration with other schools are on: (1) collaborative technical training programmes for farmers and extension workers; and (2) joint research and extension projects in Research and Development (Table 8).

Table 8. Rural development projects which the surveyed institutions plan to undertake in collaboration with other institutions

Programmes	No. of times expressed
Collaborative technical training programmes for farmer and extension workers.	12
Joint research and extension projects in Research and Development	11
Collaborative technical assistance programme	3
Organize symposia on pertinent issues of rural development	3
Collaborative research on farming systems and small scale farming	2
Establishment of viable linkages with government agencies and other institution	2
Exchange of professional and technical expertise	2
Joint technology packaging activities	2
Monitoring and evaluation of extension programmes	2
Co-ordinative efforts in instruction, extension and research	1
Develop extension and training materials	1
Develop technology delivery systems	1
Exchange fellowship programme	1
Faculty exchange programme	1
Programmes on rural adult literacy	1
Training of manpower and research collaboration in bioscience supportive of or relevant to agricultural development	1

Chapter Five

SUMMARY OF FINDINGS

Sixty-five colleges and universities in the Asia-Pacific region were sent questionnaires to determine involvement in and orientation to agriculture and rural development via programmes in instruction, research and extension. A total of 28 colleges and universities responded to the survey.

Results revealed that the majority of the surveyed institutions in the region were government-supported agricultural colleges or universities offering undergraduate and graduate programmes and diploma courses. A number were general/comprehensive universities offering agriculture as a degree-course. The few privately supported institutions, located mostly in the Philippines, were run by religious groups.

In response to the needs of their respective service areas and clientele, the respondent institutions' missions or goals may be summarized into the following general statements to: (a) train and instruct students in agriculture, science and technology improvement, consistent with the needs of the rural people and the economic well-being of the country; (b) initiate relevant research and advanced studies in agriculture and its related disciplines for improved production, consumption and renewal of natural resources; and (c) provide continuing off-campus instructional and extension services to meet the needs of rural residents and improve their quality of life.

The study also showed that institutions' philosophical orientation towards development was reflected in their expressed beliefs, i.e., that agricultural schools should contribute to national development; that the instruction, research and extension functions should be complementary, closely related and mutually reinforcing; and that national and relevant agricultural and rural development policies and technologies should be the end result of viable research activities. There was also general agreement on the philosophy that agricultural institutions should interact to exchange ideas and research results for them to be more effective in uplifting the conditions of rural people.

Instruction. Over half of the 28 surveyed institutions started offering and requiring undergraduate and graduate courses on extension education, community development and rural development even before 1980, indicating that they have long considered these as priority areas in their instructional programmes. It was noted, however, that only 30 per cent of these institutions had developed some instructional materials for the mentioned subjects. The production of quality instructional materials in quantities adequate for students as well as clientele in rural areas is seen as an important factor in increasing the effectiveness of an institution's instructional programme as it pertains to agricultural and rural development. The overriding problem however is the lack of funds and facilities to produce these materials. This should therefore be given due priority.

Institutions of higher learning in agriculture play the key role in providing pre-service training for people involved in agriculture and rural development. They produce professional agriculturists. In Southeast Asia, the number of such institutions may be adequate. In other countries of the Asia-Pacific region, however, there is an obvious dearth of agricultural institutions to produce high level manpower in agriculture. Countries like Bangladesh, Nepal, Papua New Guinea and Sri Lanka, to mention a few, must consider the establishments of institutions of higher learning in agriculture as a priority.

These same institutions have been criticized for producing graduates who are not development-oriented. Students learn within the confines of their classroom and laboratories where there is very little skill development and exposure to actual and real farming situations. An increasing number of institutions have sought to correct this by deviating from the traditional college training and embarking on programmes that provide for practical learning in farming communities and on farmers' fields.

Another important observation is that most instructional programmes have students specialize at the bachelor's degree level by requiring them to prepare a thesis. It is argued that, on the contrary, the bachelor's degree programme should produce generalists rather than specialists. A suggested solution is to require intensive field work coupled with production courses and to submit a complete documentation of these activities in place of a thesis.

Farming has become more of a business enterprise necessitating managerial and business skills among graduates of agriculture.

Provisions for the development of such skills, however, have long been neglected. The same is true for the field of postharvest technology. The curricula of the majority of the surveyed institutions show a strong emphasis on production courses on storing, processing, trading and distribution and consumption of agricultural commodities. Efforts to inject these necessary courses in the curriculum of agricultural colleges and universities must be made.

Research. Through research, agricultural colleges and universities are able to generate solutions to problems confronting the rural poor. Their aim is to develop essential technologies for agricultural and rural development. The establishment of strong and effective research programmes for agricultural institutions in the region must be given emphasis. Both the basic and applied types of research studies are important but for purposes of developing appropriate technology and solutions to multifarious problems of agricultural development, the latter type should be given priority.

In research, activities of the surveyed institutions covered a total of 187 topics or studies in nine general areas of research. The most frequently researched subjects were on the adaption and improvement of location-specific technology suitable for small producers and co-operatives, the socio-economic implications of technological change, and rural development. The least studied subject was on the participation of women in economic, political and social activities.

The findings of these researches were disseminated through the print media, mass media, trainings, workshops, seminars, demonstrations, farm exhibits, and through regular course offerings of the institutions.

However, much of the information generated from research still does not reach the intended users, primarily the farmers. Added to this, packaging of technical information was also found to be lacking.

This brings to the fore the necessity to establish more courses/training based on findings of researches in order that important information may be passed on to the people who need it most. Also, researches on development strategies and technology delivery system have become increasingly important, a realization of the fact that without effective means of delivering information to the grass roots, development will proceed at a slow pace.

Extension. An estimated 200 to 200,000 persons composed of farmers, rural housewives, out-of-school youths, development workers, field technicians and development planners in agriculture were served by the extension or outreach programmes of the surveyed institutions. Such extension programmes consisted of in-service training in agriculture, providing specialist support, teaching farmers about integrated farming and conducting short-term, non-degree training programmes. Farmers were observed to be the major clientele of extension activities. Notably absent was training which catered to policy level personnel in rural development both in government and in agricultural institutions.

Training of this nature must be regularly conducted in order that a link may be made between government development programmes and the development activities of agricultural institutions. Trained policy-makers are seen to be the key to a more concerted effort toward rural development.

A number of schools conducted field action projects as part of their extension and formal instruction activities. More activities along these lines are encouraged as previous programmes of this nature had proved to be effective.

National government appropriations were the primary source of financial support for the instructional, research and extension activities of the respondent-institutions. Funding from international donors and private firms, a major portion of which went to research and extension, was also reported by a number of institutions.

In teaching and in doing research and extension activities, the surveyed institutions reported that they were constrained by such problems as lack of: (1) financial support for vital activities; (2) instructional facilities, materials and equipment, experimental fields and support services; and (3) qualified staff and expertise primarily due to the absence or inefficiency of faculty development programmes.

A situation has arisen in some parts of the region, particularly in Southeast Asia, wherein there is a proliferation of agricultural institutions offering degree programmes in agriculture and allied fields. In general, however, most of these institutions have limited resources support to be effective in their role to provide pre-service training for personnel involved in agricultural and rural development.

As a result, there is a continuous turnout of agriculture graduates who may lack the qualifications desired by employers. Hence, while there is an apparent oversupply of agriculture graduates, there is at the same time a shortage of 'quality' graduates of agriculture.

A suggested corrective measure would be to undertake efforts to rationalize agricultural education by relating it to material needs (of the country concerned). Guiding principles and minimum standards must be imposed on the curricula of the various degree programmes offered by agricultural institutions. By so doing, agricultural graduates produced are better equipped and may be more responsive to the country's needs.

Clearly, there is a need for institution building to produce the needed manpower in agriculture. In other words, institutions must be established in areas where there are none or very few, or if there are already institutions in existence, to reorganize, reorient, modify or strengthen them for agricultural and rural development. In developing these institutions, the four major problems mentioned above must be taken into consideration.

The surveyed institutions have aligned and oriented their activities and programmes over the next five years toward the promotion of agricultural and rural development. Emphasis has been placed on research and extension activities such as the development of technology packages and appropriate technology delivery systems. The majority of the respondents further expressed the desire to cooperate with other institutions in such activities as technical training of farmers and extension workers and joint research and extension projects in rural development.

REFERENCES

Atal, Yogesh. 1982. "Social Sciences in Agriculture: Intrusion or Invitation" in *Social Sciences in Agricultural Education: Eight Status Reports from Asia.* UNESCO, India. pp iv-xx.

Chua, Leonardo A. 1986. "The Social Laboratories of SEARCA in the Context of the University." Paper presented at the Regional Seminar on Higher Education in Agriculture and Rural Development (HEARD), SEARCA, College, Laguna, Philippines, 13-15 May 1986. 18 p. (mimeo).

Khalip Abdul Raffar, Raja Ahmad Tajudin Shah and Omar Razak. 1986. "The Contributions of Agricultural Universities to Rural Development: Programmes and Prospects in Malaysia " A country report presented at the HEARD Regional Seminar, SEARCA, College, Laguna, Philippines, 13-15 May 1986. 25 p. (mimeo).

Perez, Cledualdo B., Jr. 1986. "The Contributions of Agricultural Universities to Rural Development in the Philippines." A country report presented at the HEARD Regional Seminar, SEARCA, College, Laguna, Philippines, 13-15 May 1986 16 p. (mimeo).

Saguiguit, Gil C., Jr. 1985. "The Social Laboratory Experience." Lecture delivered at the 6th Regional Training Programme on Development Strategies and Planning for Farmers' Communities, SEARCA, College, Laguna, Philippines, 25 October – 6 December 1985. 26 p. (mimeo).

Saguiguit, Gil F., Sr. 1981. "Manpower Requirements and Institutional Building for Agricultural Development." In J.D. Drilon, Jr. and G.F. Saguiguit, editors, *Accelerating Agricultural Development.* SEARCA, College, Laguna, Philippines. pp 59-97.

Sujin Jinahyon. 1986. "The Contributions of Agricultural Universities to Rural Development: Programmes and Prospects." A country report presented at the HEARD Regional Seminar, SEARCA, College, Laguna, Philippines, 13-15 May 1986. 23 p. (mimeo).

Appendix I

SURVEY QUESTIONNAIRE

UNESCO-SEARCA Study on Higher Agricultural Education and Rural Development in Developing Countries of the Asia-Pacific Region

A. General information

1. Name of College/University _____

2. Country _____ State _____

3. Year of establishment _____

4. General description of college/university: check from below as many as may apply to describe your college/university.

   a) Government supported _____

   b) Private supported _____

   c) Predominantly agriculture _____

   d) General or Comprehensive University but offering agriculture as a course _____

   e) Offering baccalaureate or 4-year degree programmes _____

   f) Offering diploma course(s) _____

   g) Offering post-graduate work _____

   h) Not offering directly any of the above but works with an affiliate college or university _____

Note: If you check (h), what is the name of the College/University to which you are affiliated _____

5. Briefly describe and/or illustrate your university/college administrative set-up (use additional sheet if necessary).

B. What are the general missions/goals of your college/university? (Please use additional sheet if necessary).

_____

_____

_____

_____

C. Guiding beliefs

In the space provided, indicate with a check (✓) whether you as a college/university "strongly agree," "agree," etc. with each of the statements.

	SA	A	N	D	SD*	Remarks if any
1. In developing countries, an agricultural college/university should also be actively engaged in, and contribute to national development particularly in the agricultural/rural sector.	( )	( )	( )	( )	( )	
2. It is beyond the scope and function of an agricultural college/university in a developing country to be committed to the mission of improving the life of people in the agricultural/rural sector.	( )	( )	( )	( )	( )	
3. An agricultural college/university need not concern itself with rural life/living.	( )	( )	( )	( )	( )	
4. An agricultural college/university should be a source of light and inspiration for a life of dignity and happiness for the farming/rural folks.	( )	( )	( )	( )	( )	

*SA = Strongly agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly disagree

	SA	A	N	D	SD	Remarks if any
5. It is not the business of an agricultural college/university to respond to the development needs of the farm/rural population.	( )	( )	( )	( )	( )	
6. The development of human resources is the true and logical focus of development.	( )	( )	( )	( )	( )	
7. Human resources are the most important factor of development and the state of their development and well-being reflects the overall national development.	( )	( )	( )	( )	( )	
8. An agricultural college/university should not engage in research and extension as these would sacrifice its instruction function.	( )	( )	( )	( )	( )	
9. Instruction, research and extension are not only complimentary functions but also closely interrelated and mutually reinforcing functions of an agricultural college/university.	( )	( )	( )	( )	( )	
10. An agricultural college/university should extend its institutional resources and capabilities to help resolve the problems and needs of other agencies (public and private), as well as the general public.	( )	( )	( )	( )	( )	

	SA	A	N	D	SD	Remarks if any
11. It is not the responsibility of an agricultural college/university to engage in researches that lead to the advancement of the frontiers of knowledge and science.	( )	( )	( )	( )	( )	
12. An agricultural college/university, through its research function, should evolve rational and practical policies and technologies for agricultural and rural development.	( )	( )	( )	( )	( )	
13. To reorient its instructional, research and extension objectives and goals towards the harnessing of its institutional capabilities to respond effectively to changing rural development needs is too much to expect of an agricultural college/university.	( )	( )	( )	( )	( )	
14. An agricultural college/university should interact with other agricultural institutions toward the enhancement of agricultural and rural development.	( )	( )	( )	( )	( )	
15. An agricultural college/university should limit its research activities only to those that are basic/fundamental in nature (as differentiated from those of practical applicability).	( )	( )	( )	( )	( )	

	SA	A	N	D	SD	Remarks if any
16. The development efforts of an agricultural college/university should be responsive to the varying needs of the rural poor in its service area.	( )	( )	( )	( )	( )	
17. An agricultural college/university should consider agricultural and rural development as areas of concern in its teaching, research and extension activities.	( )	( )	( )	( )	( )	
18. The fundamental purpose of development is individual and social betterment, development and endogenous capabilities and improvement of the living standards of all people, particularly in the rural poor.	( )	( )	( )	( )	( )	
19. Women should participate and contribute on an equal basis with men in the social, economic and political processes of rural development and share fully in improved conditions of life in rural areas.	( )	( )	( )	( )	( )	
20. An agricultural college/university should be involved in the formulation of policies and programmes affecting agricultural and rural development.	( )	( )	( )	( )	( )	

D. Instruction

D1. What are the different degrees offered at your university/college? Indicate whether baccalaureate or graduate level. Check as many as applicable. Use additional sheet if necessary.

Degrees offered	BS	MS	PhD
_____	( )	( )	( )
_____	( )	( )	( )
_____	( )	( )	( )
_____	( )	( )	( )

Note: (If possible, kindly provide a course catalogue or brochure of your university/college).

D2. Does your college/university offer courses with specialization in the following subject matter areas (e.g. Bachelor of Science in Extension Education, Bachelor of Science in Rural Development, etc.):

D2a	Rural Development	( ) Yes	( ) No
D2b.	Community Development	( ) Yes	( ) No
D2c.	Extension Education	( ) Yes	( ) No
D2d.	Other related subjects on rural development	( ) Yes	( ) No

D3 If your answer to any of the above questions item D2 (a,b,c,d) is 'Yes', please fill in the following table

Subject matter area	Brief description of course (Course Title)	Level at which offered (please check)						Check (✓) Condition of offering		Year when course was first offered	Reason (s) for offering
		Baccalaureate				Graduate					
		1st yr	2nd yr	3rd yr	4th yr	MS	PhD	Required	Selective (optional)		
Rural Development											
Community Development											
Extension Education											
Other related subjects in rural development											

D4. If your answer to any of the question items D2 (a,b,c,d) is 'No', please indicate if you have plans to offer any of the following courses

Course	Yes	No	If 'Yes' intended date of Institution of Course	Level at which offered (please check)						Reason for offering
				Baccalaureate				Graduate		
				1st yr	2nd yr	3rd yr	4th yr	MS	PhD	
Rural Development										
Community Development										
Extension Education										
Other related subjects in rural development										

D5. **Have you developed instructional materials, i.e. books, monographs, modules, etc. for use of your faculty in the following subject matter areas? (Check appropriate responses). If you have developed please indicate title, type and level at which materials are used.**

Subject matter area	Have developed (check)	Have not yet developed (check)	Have plans to develop (check)	If you have developed, indicate title of material	Level at which offered (please check)					
					Baccalaureate				Graduate	
					1st	2nd	3rd	4th	MS	PhD
Rural Development										
Community Development										
Extension Education										
Other related subjects in rural development										

D6. Are any of the following topics included in any of your course offerings:

Topics	Check one Yes	Check one No	If answer is 'Yes' indicate the courses in which topic is included	Check (✓) Level of course: Baccalaureate 1st yr	Baccalaureate 2nd yr	Baccalaureate 3rd yr	Baccalaureate 4th yr	Graduate MS	Graduate PhD
1. Objectives of national development.									
2. Principles of rural development.									
3. Participatory approach in rural development.									
4. Women's organization and participation.									
5. Market development strategies.									
6. Extension techniques and methodologies.									
7. Farming systems.									
8. Strategies for reduction of poverty.									
9. Strategies for reduction of under-nutrition.									
10. Integrating nutritional considerations in national development plans and policies.									
11. Monitoring and evaluation of rural people.									
12. Organization at grass-roots level of rural people.									
13. Institutional organization and administration of agricultural services to small farmers.									

D6. Are any of the following topics included in any of your course offerings: (cont'd)

Topics	Check one Yes	No	If answer is 'Yes' indicate the courses in which topic is included	Check (✓) Level of course					
				Baccalaureate				Graduate	
				1st yr	2nd yr	3rd yr	4th yr	MS	PhD
14. Credit and institutional credit systems for rural development.									
15. Development of non-farm rural activities.									
16. Agricultural price policies.									
17. Leadership training.									
18. Involvement of non-government organizations in rural development.									
19. Population planning.									
20. Involvement of young people in rural development.									
21. Inter-agency collaboration.									
22. Regional co-operation.									
23. Other topics which are not included in the list but which are covered in particular course that your college/university offers.									

E Research

1. In the areas listed below, what researches have been undertaken during the past three years by your college/university? If no research has been undertaken, please write 'None' opposite the research area.

Research areas	Title of research
a) Rural development	
b) Adaptation and improvement of location-specific technology suitable for use by small producers and co-operatives.	
c) Rainfed subsistence agriculture.	
d) Shifting cultivation.	
e) Harvest and post harvest losses and storage.	
f) Socio-economic implications of technological change.	
g) Small farm machines/tools development for small farmers' use.	
h) Participation of men in sharing responsibilities for household duties.	
i) Participation of women in productive activities.	

Research areas	Title of research
j) Participation of women in economic, political and social activities	
k) Others related to rural development not included in above list. Please specify.	

2. What are the sources of financial support for your college/university instruction, research and extension?

	Source of funding (check)		
	Government	International donor	Non-government, non-institutional
a) Instruction	( )	( )	( )
b) Research	( )	( )	( )
c) Extension	( )	( )	( )

3. How are information/innovations generated by your college/university researches disseminated to end-users?

4. In relation to rural development, what are the priorities of your college/university in each of the following areas?

a) Research

b) Extension _____

_____

_____

c) Training _____

_____

_____

F. Extension

1. Who is (are) the target clientele of your college's/university's extension programme? _____

_____

_____

_____

a) Approximately, how many are they? _____

_____

2. Which of the following activities does your college/university perform? Please check as many as applicable and indicate to what extent each is performed i.e. Much, Some, Little, None at All.

Extension activities	Extent performed*			
	M	S	L	NA
a) Conduct short-term and non-degree training programmes				
b) Select and collate practical and appropriate technology.				
c) Establish inter-agency linkages with government and non-government organizations.				
d) Develop appropriate training materials, designed to upgrade the technical and managerial skills of extension technicians along the lines of implementing rural development project.				

Extension activities	Extent performed* M	S	L	NA
e) Develop appropriate training materials designed to upgrade the technical and managerial skills of small farmers along the lines of implementing rural development projects.				
f) Develop and recommend policy guidelines to appropriate bodies, i.e. the Ministry of Agriculture or similar organizations/agencies in the area of agricultural and rural development.				
g) Develop approaches/innovations pertaining to rural development processes.				
h) Conduct pilot projects in agricultural and rural development.				
i) Support national food programmes by providing in-service training in agriculture and related areas.				
j) Package agricultural support/services.				
k) Provide specialist support.				
l) Provide extension programmes to support women's roles in activities of agricultural production.				
m) Promote income generating opportunities for rural women.				
n) Promote collective action and organization by rural women to facilitate their participation in rural development.				

Extension activities	Extent performed* M	S	L	NA
o) Conduct trials, demonstrations and experiments with farmer co-operators.				
p) Maintain extension communication services for information dissemination and public service.				
q) Teaching farmers about integrated farming.				
r) Monitoring and evaluation of extension programmes.				
s) Other extension activities that your college/university pursues not included in the above. Please use this space to list them.				

* M = Much; S = Some; L = Little; NA = Not at All.

3. Has your college/university offered any training programmes in 1984 specially designed for the following groups of clientele?

Clientele	Yes	No	If 'Yes' give subject matter of training programme	No. of participants
a) Rural women				
b) Rural youth				
c) Small farmers				
d) Small inland fishermen				
e) Shifting cultivators				
f) Landless agricultural workers				
g) Policy level personnel in rural development				

Clientele	Yes	No	If 'Yes' give subject matter of training programme	No. of partici-pants
h) Development planners				
i) Middle level personnel in rural development, i.e. supervisors				
j) Field level personnel in rural development				
k) Rural communication i.e. radio broadcasters, journalists				
l) Teachers in rural areas				
m) Others, please specify _____ _____ _____				

4. Have you conducted field action projects in rural development:

Yes _____ No _____

(The objective of field action projects is to develop approaches and innovations pertaining to rural development processes, try it out on a pilot scale and, in the process, develop the critical delivery and support systems needed to sustain the development process).

4.1 If 'Yes', brief description of project _____

_____

_____

5. Does your college/university maintain an experimental farm?

Yes _____ No _____

5.1 If 'Yes', please provide the following information:

5.1a Size of farm _____

5.1b Distance of farm from college/university _____

5.1c Date when farm began operations _____

5.1d Is the farm owned by (check) ( ) college/university
( ) farmer co-operators

5.1e List the activities here in the farm.

_____

_____

_____

G. Problem areas

1. What are the problem/constraints that your college/university experiences in carrying out the following functions. Use additional sheet if necessary.

1a. Teaching _____

_____

_____

1b. Research _____

_____

_____

1c. Extension _____

_____

_____

H. Future programmes/activities

As colleges/universities in Asia and Pacific regions move into the next five years, what priority programmes/activities related to rural development would your college/university consider participating in?

Please list five programmes/activities according to priority, i.e. List as No. 1, the first priority, No. 2, second priority, down the line.

a) Programmes/activities which your college/university would consider individually in relation to rural development.

_____

_____

_____

b) Programmes/activities which your college/university could do collaboratively/co-operatively with other universities in relation to rural development.

_____

_____

_____

Remarks/comments

If there are additional remarks or comments that you wish to share with others in the region as regards the roles, functions and responsibilities of agricultural college/universities in rural development, you may use this space.

* * * *

Name(s) of the person(s) who completed this questionnaire	Designation	Date

If available, kindly indicate Telex No. _____

Please return the completed questionnaire by airmail on or before 30 September 1985 directly to:

The Director
SEARCA, College, Laguna
Philippines 3720

Thank you very much for your kind assistance.

(Adapted and modified from the report on the *Involvement of the Asian Agricultural Colleges and Universities in Agrarian Reform and Rural Development* by Sison, O.F., S.T. Mancebo, and R.G. Corcolon, October 1984).

Appendix II

LIST OF COUNTRIES AND RESPONDENT-INSTITUTIONS INCLUDED IN THE SURVEY

Country : **Afghanistan**

Kabul University

Country : **Bangladesh**

Bangladesh Agricultural University

Country : **Burma**

Arts and Science University, Mandalay

Country : **India**

Andhra Pradesh Agricultural University
Assam Agricultural University
Haryana Agricultural University
Gorakphur University
Gujarat Agricultural University
Jawaharlal Agricultural University
Kerala Agricultural University
Marathwada Agricultural University
Orissa University of Agriculture
Punjab Agricultural University
Punjabrao Agriculture University
Tamil Nadu Agricultural University
University of Agricultural Sciences
University of Udaipur

Country : **Indonesia**

Universitas Andalas
Institut Pertanian Bogor
Universitas Brawijaya
Universitas Cenderawasih

Country : **Indonesia** (cont'd)

Facultas Pertanian
Universitas Gadjah Made
Universitas Negeri Jendral Soedirman
Universitas Sriwijaya
Udayana State University

Country : **Korea**

Seoul National University
Chung Nam University
Kang Weon National University
Cheon Buk National University
Cheon Nam National University
Kyeong Buk National University
Kyeong Sang University
Cheju National University
Sung Kyun Kwan University
Korea University

Country : **Malaysia**

University Pertanian Malaysia

Country : **Nepal**

Tribhuvan University

Country : **Pakistan**

Pakistan Agricultural University
University of Peshawar

Country : **Papua New Guinea**

University of Papua New Guinea

Country : **Philippines**

Don Mariano Marcos Memorial University (DMMMSU)
Isabela State University
Mindanao State University
Mariano Marcos State University
Central Mindanao University
Visayas State College of Agriculture (VISCA)
Central Luzon State University (CLSU)

Country : **Philippines** (cont'd)

Pampanga Agricultural College (PAC)
Mountain State Agricultural College (MSAC)
University of Eastern Philippines
Xavier University
Don Severino Agricultural College
Southwestern University
Palawan National Agricultural College
Cagayan State University

Country : **Singapore**

National University of Singapore

Country : **Sri Lanka**

Peradeniya University

Country : **Thailand**

Maejo Institute of Agricultural Technology
Chiangmai University
Prince of Songkhla University

Appendix III

DEGREE OF AGREEMENT OF THE SURVEYED INSTITUTIONS TO STATEMENTS OF BELIEFS OF AGRICULTURAL COLLEGES AND UNIVERSITIES

Statements of beliefs	Degree of response					Total score
	SA	A	N	D	SD*	
In developing countries, an agricultural college/university should also be actively engaged in and contribute to national development, particularly in the agricultural/rural sector.	23	3	0	0	0	127
It is beyond the scope and function of an agricultural college/university in a developing country to be committed to the mission of improving the life of people in the agricultural/rural sector.	0	0	0	11	15	37
An agricultural college/university need not concern itself with rural life/living.	0	0	0	10	16	36
An agricultural college/university should be a source of light and inspiration for a life of dignity and happiness for the farming/rural folks.	18	8	0	0	0	122
It is not the business of an agricultural college/university to respond to the development needs of the farm/rural population	0	0	1	7	18	35
The development of human resources is the true and logical focus of development.	16	8	0	0	0	112
Human resources are the most important factor of development and the state of their development and well-being reflects the overall national development.	19	5	1	0	0	118

* SA – strongly-agree (5); A – agree (4); N – neutral (3); D – disagree (2); SD – strongly disagree (1).

Appendix III (cont'd)

Statements of beliefs	Degree of response					Total score
	SA	A	N	D	SD*	
An agricultural college/university should not engage in research and extension as these would sacrifice its instruction function.	0	1	0	6	19	35
Instruction, research and extension are not only complementary functions but also closely interrelated and mutually reinforcing functions of an agricultural college/university.	21	5	0	0	0	125
An agricultural college/university should extend its institutional resources and capabilities to help resolve the problems and needs of other agencies (public and private), as well as the general public.	11	13	1	1	0	112
It is not the responsibility of an agricultural college/university to engage in researches that lead to the advancement of the frontiers of knowledge and science.	0	0	0	4	22	30
An agricultural college/university through its research function, should evolve rational and practical policies and technologies for agriculture and rural development.	19	7	0	0	0	123
To reorient its instructional, research and extension objectives and goals toward the harnessing of its institutional capabilities to respond effectively to changing rural development needs is too much to expect of an agricultural college/university.	1	1	4	9	10	49

Appendix III (cont'd)

Statements of beliefs	Degree of response					Total score
	SA	A	N	D	SD*	
An agricultural college/university should interact with other agricultural institutions towards the enhancement of agricultural and rural development.	19	7	0	0	0	123
An agricultural college/university should limit its research activities only to those that are basic/fundamental in nature (as differentiated from those of practical applicability).	0	0	0	1	4	6
The development efforts of an agricultural college/university should be responsive to the varying needs of the rural poor in its service area.	14	11	1	0	0	117
An agricultural college/university should consider agricultural and rural development as areas of concern in its teaching, research and extension activities.	15	10	1	0	0	118
The fundamental purpose of development is individual and social betterment, developed and endogenous capabilities and improvement of the people, particularly in the rural poor.	11	15	0	0	0	115
Women should participate and contribute on an equal basis with men in the social, economic and political processes of rural development and share fully in improved conditions of life in rural areas.	13	12	1	0	0	116
An agricultural college/university should be involved in the formulation of policies and programmes affecting agri-agricultural and rural development.	17	6	3			118

Appendix IV

COURSES OFFERED BY THE SURVEYED INSTITUTIONS CLASSIFIED UNDER RURAL DEVELOPMENT, COMMUNITY DEVELOPMENT, EXTENSION EDUCATION AND RELATED SUBJECTS

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
A. Rural development						
Administration in rural development		2	1			1
Agricultural education for rural development	1					1
Agricultural development		1	1			
Appropriate technology	1		1			
Comparative social institution	1				1	
Cultural anthropology	1			1		
Issues and problems of rural development	1		1			
Planned change in rural development	1		1			
Planning and implementation of rural development	3	1	2	1	1	
Principles of rural development theories and approaches	2	3	2	1	1	1
Problems of rural development and alternative modelling		1			1	
Programme planning and implementation		2			2	
Rural social institutions	1	1	2			
Rural sociology	5	3	6		2	

Appendix IV (cont'd)

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
A. Rural development (cont'd)						
Social change and educational development	1					1
Sociology of development		1			1	
Theories and strategies of change	1				1	
Sub total	19	15	17	3	10	4
B. Community development						
Agricultural co-operation	1		1			
Community development programmes	3		3			
Community dynamics		1	1			
Community leadership		1	1			
Community organization and leadership	1				1	
Community, society and change		2	2			
Comparative community development	1	1			2	
Field practice	2		2			
Human resource management	1			1		
Philosophy principles and problems of community	4	1	4	1		
Population education, family relationships and community development	1		1			
Principles of planning, implementation and evaluation of community development programmes	2	1	2		1	

Appendix IV (cont'd)

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
B. Community development (cont'd)						
Social development	1				1	
Sub total	17	7	17	2	5	
C. Extension education						
Administration in rural adult education		1				1
Agricultural extension education	2	1	3			
Agricultural extension teaching	1		1			
Agricultural teaching methods and communication	2		2			
Communication in extension education	1					1
Co-operatives		1	1			
Development communication		4	3		1	
Diffusion of agricultural innovations	1	2	2			1
Evaluation in adult education	1					1
Extension procedures and practices		2			2	
Extension programme evaluation and feedback system	1		1			
Extension strategies for rural development	1					1
Extension teaching methods, programme planning, audio-visual aids		3	2		1	
Field practice in agricultural extension	1		1			

Appendix IV (cont'd)

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
C. Extension education (cont'd)						
Fundamentals of agricultural management		1	1			
Group dynamics		1			1	
Leadership and organization	1					1
Leadership for rural extension	1	1	1		1	
NFE in agriculture	1					1
Organization and administration of agricultural extension courses	2	1	2		1	
Paraprofessionals in adult education	1					1
Philippine rural society	1		1			
Philosophy and principles of extension education	4	3	5		2	
Planning and administering of extension programmes	1					1
Planning and implementation of extension programmes	2		2			
Programme development and evaluation	1	1	1		1	
Research paper	1		1			
Rural development management		2	1		1	
Rural leadership and group dynamics	1		1			
Rural leadership and social problems	2		2			
Rural social system	2		1			1
Social psychology	2		2			
Supervised extension teaching	1		1			

Appendix IV (cont'd)

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
C. Extension education (cont'd)						
Teaching adults and out-of-school youths	1		1			
Teaching farmer classes in agriculture	1					1
Teaching method in rural adult education	2	1	2		1	
Youth and adult organizations	1	1	1		1	
Youth organization and projects in vocational agriculture	1		1			
Sub total	41	26	43		12	11
D. Related studies						
Advanced educational psychology	1					1
Agribusiness	1		1			
Agricultural economics		1	1			
Animal husbandry and dairy science		1	1			
Cost benefit analysis		3			3	
Current problems and issues in educational administration	1					1
Curriculum planning and development	1					1
Demography		1	1			
Economics of education	1					
Educational research	1					
Farm management	1					
Farming systems	1					
Personnel administration	1					1

Appendix IV (cont'd)

Course description	Number of institutions					
	Date offered		Level offered			
	Before 1980	After 1980	BS req.	BS opt.	MS/PhD req.	MS/PhD opt.
D. Related studies (cont'd)						
Principles and methods of teaching agriculture	1	1	2			
Principles of agricultural marketing	2		2			
Social science research	1					1
Sub total	13	9	12	1	3	6
Total	90	57	89	6	31	21

Appendix V

CATEGORIES OF COURSES IN THE UNDERGRADUATE AND GRADUATE LEVELS OFFERED BY THE SURVEYED INSTITUTIONS

Course category	Level offered		Topics included in the courses*																						Total	
	BS	MS/PhD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	No.	%
Agribusiness/Farm Management	7	4					3	1	2							1		3								10	3.1
Agricultural and Rural Development	26	29	8	11	5	3		1		5	1		1	3	1	2				1		2	2	1		37	11.5
Agricultural Co-operation and Institutions	9	2												1	3	1	1			1			1	1		9	2.8
Agricultural Co-operatives	7	3												2	2	2	1			1						8	2.5
Agricultural Development Planning	0	1	1																				1			2	0.6
Agric. Economics, Finance, Marketing and Prices	39	26	1				14			1			1		1	10	1	16					1	1		49	15.2
Agricultural Education	9	2	1	1				1		1			1				2		1			2				10	3.1
Agricultural Investment Analysis	1	1																						1		1	0.3
Agricultural Labour Theory	2	0											1													2	0.6
Agricultural Management	3	4							1		1	1			1								1		1	6	1.9
Agricultural Population	6	3																		1	8					9	2.8
Agricultural Problems and Policy	1	5								2	1	1				2										6	1.9
Agricultural Production Theory	1	1																							1	1	0.3
Agriculture/Farming Systems	11	7							15																	15	4.7
Community Development	5	7	1		2					1	1	1			1					2			1	1		11	3.4
Community Survey	2	0											1													1	0.3
Demography	1	1																			1					1	0.3
Development Communication/ Rural Communication	9	8	1		1			2	1		1	1	1	1			1					1	1		3	14	43.0
Extension/Extension Education	42	18	3	5	5	1		12		1			3	5	3		2		1	3		3	1			48	14.9
Field Practice	3	0												1					1			1				3	0.9

Appendix V (cont'd)

Course category	Level offered		Topics included in the courses*																							Total	
	BS	MS/PhD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	No.	%
Homemaking/Home Economics	5	0				1					2	2														5	1.6
Human Nutrition/Survey and Improvements	9	6								1	4	6														11	3.4
Leadership Development/Group Dynamics	7	7												1					10	1						12	3.7
Nationalism and Development	0	1	1																							1	0.3
Philippine Government and the New Constitution	1	0	1																							1	0.3
Programme Planning and Evaluation	4	1											4				1									5	1.6
Project Development and Management	3	13	2		1		1						2	1	2	1							2	2		14	4.4
Resource Economics	3	1	1																						2	3	0.9
Rural Sociology	8	8	1	4	1									1			1		1		1	1				11	3.4
Rural Social Structure/Farm Organization	4	9			1	1								2	5	1	1			2		1				14	4.3
Seminar	2	0						1								1										2	0.6
	230	170	22	21	16	7	18	18	17	14	10	12	15	18	19	21	11	19	14	12	10	11	11	6	8		
			6.8	6.5	5.0	2.2	5.6	5.6	5.9	4.3	3.1	3.7	4.6	5.6	5.9	6.5	3.4	5.9	4.3	3.7	3.1	3.4	3.4	1.9	2.5	322	

* Topics are listed in Appendix VI

Appendix VI

LIST OF TOPICS INCLUDED IN COURSES

1. Objectives of national development
2. Principles of rural development
3. Participatory approach in rural development
4. Women's organization and participation
5. Market development strategies
6. Extension techniques and methodologies
7. Farming systems
8. Strategies for reduction of poverty
9. Strategies for reduction of undernutrition
10. Integrating nutritional considerations in national development plans and policies
11. Monitoring and evaluation of rural people
12. Organization at grassroots level of rural people
13. Institutional organization and administration of agricultural services to small farmers
14. Credit and institutional credit systems for rural development
15. Development of non-farm rural activities
16. Agricultural price policies
17. Leadership training
18. Involvement of non-government organizations in rural development
19. Population planning
20. Involvement of young people in rural development
21. Interagency collaboration
22. Regional co-operation
23. Other topics which are not included in the list but which are covered in particular course that your college/university offers.

Appendix VII

INSTRUCTIONAL MATERIALS ON DIFFERENT SUBJECT MATTERS DEVELOPED BY THE SURVEYED INSTITUTIONS AND OFFERED EITHER OR BOTH IN THE UNDERGRADUATE AND GRADUATE LEVELS

Title of material	Subject matter*	Number of instructional materials							
		Level offered							
		BS		MS/PhD		Both		Total	
		No.	%	No.	%	No.	%	No.	%
a) Book									
Agricultural Communication	EE					1		1	
Basic Agricultural Extension	AE	1						1	
Community Development	CD	1						1	
Evaluation of Rural Development Projects	RD, CD					1		1	
Principles of Agricultural Extension	AE					1		1	
Rural Guidance	AE	1						1	
Rural Life Improvement	EE			1				1	
Rural Sociology	RD	1		1				2	
Strategies for Rural Development	RD			1				1	
Sub-total		4	17.4	3	23.1	3	37.5	10	22.7
b) Monograph									
Rural and Community Development	RD, CD	1						1	
Community Development	CD					1		1	
Community Dynamics	CD	1						1	
Rural Development	RD					1		1	
Sub total		2	8.7			2	25.0	4	9.1

* EE – Extension Education; AE – Agricultural Extension; CD – Community Development; RD – Rural Development; AH – Animal Husbandry; Agron – Agronomy; Ag. Econ – Agricultural Economics; RS – Related Studies.

Appendix VII (cont'd)

Title of material	Subject matter*	Number of instructional materials							
		Level offered							
		BS		MS/PhD		Both		Total	
		No.	%	No.	%	No.	%	No.	%
c) **Module**									
Compilation of Readings and Report in Extension	AE	1						1	
Curriculum Planning and Development	RS			1				1	
Educational Research	RS			1				1	
Extension Education	EE			1		1		2	
Extension Methodology	EE	1		1				2	
Extension Strategies for Rural Development	RD, EE			1				1	
How to Master Parliamentary Procedure	RS	1						1	
Methodology of Rural Development	RD					1		1	
Problems of Issues in Agricultural and Rural Development	RD			1				1	
Programme Planning Implementation and Evaluation	EE					1		1	
Resource Materials in Animal Science I	AH	1						1	
Resource Materials in Community Development	CD	1						1	
Resource Materials in Crop Science I	Agron.	1						1	
Resource Materials in Economics	Ag. Econ.	1						1	
Resource Materials in Rural Development	RD	1						1	
Teaching Handbook in Rice Production	RS	1						1	
Test, Measurement and Evaluation	RS			1				1	
Sub total		9	39.1	7	53.8	3	37.5	19	43.2

Appendix VII (cont'd)

Title of material	Subject matter*	Number of instructional materials							
		BS		MS/PhD		Both		Total	
		No.	%	No.	%	No.	%	No.	%
d) **Syllabus**									
Agribusiness	RS	1						1	
Agricultural Economics	RS	1						1	
Animal Science	RS	1						1	
Crop Science	RS	1						1	
Entomology	RS	1						1	
Manual on Organizing Credit Unions	RD, CD	1						1	
Plant Pathology	RS	1						1	
Soil Science	RS	1						1	
Manual on Development Communication I	EE			1				1	
Sub total		8	34.8	1	7.7			9	20.4
e) **Audio-visuals**									
This is Agricultural Communication	EE			1					
Research Methodology	RS			1				1	
Sub total				2	15.4			2	4.5
Total		23	100	13	100	8	100	44	100

Appendix VIII

LIST OF INSTITUTIONS OFFERING DEGREE PROGRAMMES IN AGRICULTURE IN INDONESIA, MALAYSIA, THE PHILIPPINES AND THAILAND

Indonesia

Institute of Pertanian Bogor
Bogor

University of Gadjah Mada
Jogjakarta

Andalas University
Padang, Western Sumatra

Pajadjaran University
Bandung

Sam Ratulangi University
Menado, North Sulawesi

Sumatra Utara University
Medan, North Sumatra

Lambung Mangkurat University
Bandjar Baru, South Kalimantan

Brawidjaja University
Malang, East Java

Tawangalan University
Djember, East Java

Mulawarman University
Samarinda, East Kalimantan

Seriwidjaja University
South Sumatra

Hasanuddin University
Makassar

Nusa Tjendana University
Kupang, Maluko Island

Talanaipura University
Djambi

Dwikora University
Pontianak, Kalimantan

Pattimura University
Ambon

Tjenderwasih University
Manokwari, West Irian

Mataram University
Matraran

Sjah Kuala University
Banda Atjeh

Djeneral Sudirman University
Purwokerto

University of Riau
Pakanbaru

Diponegoro University
Semarang

Kalimantan Tengah
Palangkaraya

Udayanan University
Denpasar, Bali

Appendix VIII (cont'd)

Malaysia

Agriculture University
Serdang, Selangor

Institutes that offer 3-year post-secondary programme in agriculture leading to the Certificate or National Diploma

Agriculture Institute
Bumbong Lima, Wellesley
Penang

Agriculture Institute
Serdang, Selangor

Agriculture Institute
Parit, Perak

Agriculture Institute
Ayer Hitam, Johore

Agriculture Institute
Kuala Lipio, Pahang

Agriculture Institute
Trengganu

Agriculture Teacher-Training Institute
Maktab Penguruan
Johore Baru

Philippines

State Colleges and Universities

Northern Luzon State College of Agriculture
Piat, Cagayan

Cagayan Valley Institute of Technology
Cabagan, Isabela

Isabela State College of Agriculture
Echague, Isabela

Nueva Viscaya Institute of Science and Technology
Bayombong, Nueva Viscaya

Mariano Marcos Memorial Institute of Science and Technology
Batac, Ilocos Norte

Don Mariano Marcos National College of Agriculture
Bacnotan, La Union

Central Luzon State University
Muñoz, Nueva Ecija

Don Severino Agricultural College
Indang, Cavite

Catanduanes State Colleges
Virac, Catanduanes

Bicol University
Guinobatan, Albay

University of the Philippines
Los Baños College
Laguna

University of Eastern Philippines
University Town
Northern Samar

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Appendix VIII (cont'd)

Philippines (cont'd)

Visayas State College of Agriculture
Baybay, Leyte

Mindanao State University
Marawi City

Central Mindanao University
Musuan, Bukidnon

Mindanao Institute of Technology
Kabacan, Cotabato

Palawan Agricultural College
Aborlan, Palawan

Camarines Sur Agricultural College
Pili, Camarines Sur

Pampanga Agricultural College
Magalang, Pampanga

Mountain State Agricultural College
La Trinidad, Benguet
Mountain Province

Cagayan Valley Agricultural College
Lal-lo, Cagayan

Aklan Agricultural College
Banga, Aklan

Iloilo National College of Agriculture
Lambunao, Iloilo

Bureau of Higher Education

Ilocos Sur Agricultural College
Sta. Maria, Ilocos Sur

Ilocos Norte Agricultural College
Pasuquin, Ilocos Norte

Lagangilang Agricultural College
Lagangilang, Abra

Cagayan Valley Agricultural College
Lal-lo, Cagayan

Bulacan National Agricultural School
San Ildefonso, Bulacan

Saburin Estate Agricultural College
Gabaldon, Nueva Ecija

Zambales National Agricultural School
San Marcelino, Zambales

Baybay National College of Agriculture
Siniloan, Laguna

Catanduanes Agricultural and Industrial School
Panganiban, Catanduanes

Masbate Agricultural College
Mandaon, Masbate

Aklan Agricultural College
Banga, Aklan

Capiz Agricultural and Fishery School
Pontevedra, Capiz

Iloilo National College of Agriculture
Lambunao, Iloilo

Mambusao Agricultural and Technical College
Mambusao, Capiz

Negros Occidental National Agricultural School
Kabankalan, Negros Occidental

Appendix VIII (cont'd)

Bureau of Higher Education (cont'd)

Bohol Agricultural College
Bilar, Bohol

Biliran National Agricultural College
Biliran, Leyte

Southern Samar Agricultural College
Salcedo, Eastern Samar

Leyte National Agricultural College
Villaba, Leyte

Lanao Agricultural College
Karomatan, Lanao del Norte

Davao National Agricultural School
Monkayo, Davao del Norte

Camarines Sur Agricultural College
Pili, Camarines Sur

Northern Mindanao Agricultural College
Butuan City

Upi Agricultural College
Upi, Cotabato

Private Institutions

Araneta University Foundation
Malabon, Rizal

Xavier University
Cagayan de Oro City
Misamis Oriental

Mountain View College
Musuan, Bukidnon

Central Philippine University
Iloilo City

Siliman University
Dumaguete City

Thailand

University of Chiangmai
Chiangmai

Kasetsart University
Bangkhen, Bangkok

Khon Kaen University
Khon Kaen

Prince of Songkhla University
Pattani

Bangpra Agricultural College
Chonburi

Surin Agricultural College
Surin

Ayuthaya Agricultural College
Ayuthaya

Nakon Si Tammarat Agricultural College
Nakon Si Tammarat

Chiangmai Agricultural College
Maejo

Kalasin Agricultural College
Kalasin

Appendix VIII (cont'd)

Thailand (cont'd)

Pitsanulok Agricultural College
Pitsanulok

Juntaburi Agricultural College
Juntaburi

Choakoontaharn
Ladgabang, Bangkok

Nan Agricultural College
Nan

Patoomthani Agricultural College
Patoomthani

Appendix IXa

RESEARCH AREAS IN WHICH THE SURVEYED INSTITUTIONS HAVE RESEARCH PROGRAMMES/PROJECTS

Institution	Research areas*									
	a	b	c	d	e	f	g	h	i	j
Andhra Pradesh Agricultural University	x	x	x	x	x	x	x		x	
Cagayan State University		x	x		x	x	x			
Central Luzon State University	x	x			x	x	x			
Central Mindanao University	x	x			x	x	x			
Chiangmai University		x	x	x	x	x	x			
Chung Nam National University					x		x		x	
Don Mariano Marcos Memorial State University	x	x								
Don Severino Agricultural College		x			x					
Gadjah Mada University	x		x	x		x				
Gorakhpur University					x	x				
Isabela State University	x	x	x	x	x	x	x			
Maejo Institute of Agricultural Technology	x	x				x	x			
Marathwada Agricultural University	x	x				x				
Mariano Marcos Memorial State University	x	x			x		x			
Mindanao State University		x								
Mountain State Agricultural College	x	x	x	x	x	x	x			

Appendix IXa (cont'd)

Institution	Research areas*									
	a	b	c	d	e	f	g	h	i	j
National University of Singapore					x					
Palawan National Agricultural College	x	x	x				x			
Pampanga Agricultural College	x	x	x	x		x				
Peradeniya University	x			x	x					
Seoul National University	x				x		x		x	x
Southwestern University										
Tribhuvan University	x	x	x	x	x	x				
University of Eastern Philippines	x	x	x			x	x			
University of Papua New Guinea		x								
Universiti Pertanian Malaysia	x	x			x	x	x		x	x
Visayas State College of Agriculture	x	x	x	x	x	x	x		x	x
Xavier University	x		x	x	x	x	x			
Total number of institution	19	20	12	10	18	17	16	0	6	4
Number of research conducted*	26 (13.9%)	39 (20.8%)	18 (9.6%)	8 (4.3%)	23 (12.3%)	27 (14.4%)	23 (12.3%)	0	5 (2.7%)	4 (2.1%)

* See Appendix IXb for List of Research Areas and Research Titles.

Appendix IXb

LIST OF RESEARCHES UNDERTAKEN BY RESPONDENT-INSTITUTIONS

a) **Rural development**

1. Rural-urban migration: A Test on the Social Mobility Theory
2. Barangay-based rural development for small coconut farmers in Leyte, Philippines
3. An appraisal of the in-service training needs of rural development workers in the Visayas, Philippines
4. Decision-making and the management process among rural families in Region II, Philippines
5. Evaluation of the integrated rural development scheme, Sri Lanka
6. Communication effectiveness between extension agents and rice farmers in Chiangmai, Thailand
7. A study on the implementation of the community leadership training project, Thailand
8. Evaluation of the rural development project of Maejo Institute of Agricultural Technology, Thailand
9. Folk media as an instrument for development
10. A theoretical review on the diffusion of agricultural innovations for rural development in developing countries, Korea
11. The role of the social worker in community development, Korea
12. The effect of radio and other sources of information on the farmers of Chitwan District, Nepal
13. An evaluation of the relevance of the IAAS (Nepal) Bachelor of Science in Agriculture programme to rural development
14. Studies on family economic size dairy production under Pampanga Agricultural College (PAC) conditions

Appendix IXb (cont'd)

15. Documentation of rural development studies in Nueva Ecija, Philippines
16. Social action in action research, Villa Cuizon Integrated Barangay Development
17. Case study: Achievements of two outstanding Farm Management Technicians (FMT's) in Nueva Ecija, Philippines
18. The first year of operation of the TPP complementation modules for peanut and mungbean in Nueva Ecija, Philippines
19. Farmers' response to the government information programmes in rural development and their acceptance to technological innovations
20. Determinants of land use patterns in highland areas
21. Survey, identification of factors associated with the success of farming systems in the highlands
22. Integrated development financing scheme for small farmers
23. Factors associated with the success and failures of co-operatives and Samahang Nayons in Palawan, Philippines
24. Production and consumption patterns in Bayanihan and Non-Bayanihan school areas in Palawan, Philippines
25. An evaluative study of on-going development programme, India
26. Baseline study of households in Kampung Dusun Tha, Mukim Ulu Langat Utara, Selangor, Malaysia

b) **Adaptation and improvement of location-specific technology suitable for use by small producers and co-operatives**

1. Applied seed production studies for low, medium and high elevations in highland areas
2. Variety performance trials on solenaceous crops and crucifers
3. Garden pea co-ordinated research programme
4. Response of legume crops to different levels of sugarcane mudcake

Appendix IXb (cont'd)

5. Emergence rate trial on various soil moisture at planting in the CASUCO sugarcane areas, Philippines
6. Organic fertilization studies in white potato
7. Growth and yield of white potato (var. Isola) as affected by different mulching materials
8. Evaluation of different fungicides for the control of fungal diseases of some selected crops
9. Utilization of organic manures for the control of root-knot nematodes (*Meloidogyne spp.*) on infested plants
10. Effect of different pesticides on germination, seeding vigor, and pest density on some selected crops
11. Study on the method of planting, spacing and fertilizer levels on the growth and yield of black gram (mungo).
12. Response of broilers to commercial feeds replaced with varying levels of fresh ipil-ipil leaves
13. Response of growing pigs fed with commercial hog grown mash replaced with varying levels of biogas sludge
14. Utilization of whole sugarcane plants and whole sugarcane tops as feed for dairy goats
15. Effect of dried poultry manure-rice bran mixture on production of water buffalo cows on pasture
16. Goat under mango tree: The effect of grazing on mango tree growth and yield
17. Performance of cabbage (*Brassica oleraceae* var. capitata) applied with different levels of nitrogen from ipil-ipil leaves and ammonium sulfate fertilizer
18. Coco-based farming systems for small farmers in Palawan
19. Varietal trial of azolla in Palawan
20. Non-conventional foodstuffs for animals
21. Coconut-grain-cattle integration for small farmers
22. The biological performance of raw mustard oil cakes as compared to raw soybean on swine, Nepal

Appendix IXb (cont'd)

23. Contribution of dew on winter wheat at Rampur, Nepal
24. Intercropping onion with legumes under different schedules and levels of irrigation
25. Influence of planting dates on the yield of mushrooms
26. Wheat testing programme in farmers' fields, Thailand
27. Effects of water stress on growth and production of Arabica coffee
28. Utilization of African snails for increased egg production in layers
29. On-farm verification and refinement of technology for peanut
30. Response of sweet potato to levels of NPK with or without green manure
31. Production performance of selected varieties of cassava
32. Effect of population densities and levels of NPK fertilizer on rice bean (*Tapilan*) production
33. White potato production trial in Tagaytay, Philippines
34. Diversification of agricultural production in Eastern Visayas, Philippines
35. Regional verification for the adaptability of some recommended white flint corn and sorghum in problem soils
36. Screening for drought resistance in root crops
37. Tillage requirements of various root crops under varying agro-climatic conditions
38. Regional farm and station evaluation of promising varieties of *Colocasia esculenta* and their cultural management
39. Technology adoption by small farmers, India

c) **Rainfed subsistence agriculture**

1. Agronomic approach to reconditioning marginal hilly areas for root crop production

Appendix IXb (cont'd)

2. Effects of planting depths in growth and yield of coconut cultivars/hybrids grown in hilly areas in Eastern Visayas
3. Growth, yield and development of different abaca clones grown under coconut
4. Multi-storey cropping systems under coconut
5. Tillage requirements of various root crops under varying agro-climatic conditions
6. Upland agricultural farming: cropping pattern and rest incidence
7. Evaluation of soybean, peanut, cowpea and pigeon pea under lowland and upland rice-based stress conditions
8. Agro-climatic zonification in Region II
9. Crop water requirement study under rainfed condition, Thailand
10. Effect of N_2 and S fertilization on yield and oil content in mustard, Nepal
11. Agro-reforestation research project
12. Yield loss assessment of soybeans as affected by varying degree of simulated leaf damage at different growth stages
13. Hillside farming, Indonesia
14. Establishment of farming systems involving semi-temperate fruit trees and vegetables in sloping areas of Benguet, Philippines
15. Coffee-based agroforestation project
16. Intercropping and cropping patterns
17. Cashew with intercrops in hilly areas
18. Varietal trials of coffee

d) **Shifting cultivation**

1. Soil conservation and fertility studies of highland vegetable areas
2. Cropping systems in highland areas involving sweet potato

3. Test farming on tidal swamp areas, Indonesia
4. Intercropping sugarcane with selected annual cash crops
5. Mapping and characterization of IAAS farm soils, Nepal
6. Socio-economic characteristics of shifting cultivators, Sri Lanka
7. Varietal improvement of grain, legumes, corn and vegetables under various cropping systems and stress conditions
8. Nutritional consequences due to the shift from semi-subsistence to cash crops production (corn to sugarcane) in Southern Bukidnon, Philippines.

e) **Harvest and postharvest losses and storage**

1. Hot air drying of corn on cobs using corn cobs as source of fuel
2. Effects of different methods of processing on coffee cup quality
3. Postharvest and handling practices of rootcrop farmers in Region II, Philippines
4. Development of village level storage and processing methods/facilities for legumes
5. Postharvest physiology and preservation of fruits and vegetables
6. The effect of harvesting time on yield of peanuts, Thailand
7. Development of a rice drier for reducing postharvest losses, Sri Lanka
8. Identification of major storage pests of garlic and their natural enemies
9. Preliminary study on the effects of phyto-repellants against insect pests of garlic in storage
10. Postharvest losses in traditional piling systems of harvested palay in Bukidnon, Philippines
11. An examination of potential and actual agricultural yields and yield constraints, Korea
12. Physiological study on grains loss in rice, an estimation and identification of the problem in Chitwan, Nepal

Appendix IXb (cont'd)

13. Farm level storage of tomatoes using sawdust, sand and rice hull ash
14. Development of a cocoon dryer
15. Design, construction and performance test of a portable tomato sorter/grader
16. Storage studies on soybean, sesame and sunflower
17. Storage dehydrator using different storage materials
18. Viability test of beans stored in different storage packets
19. Effects of different types of containers and lining materials on the quality of ripening bananas during transport
20. Drying behaviour and milling quality of palay using different types of dryer
21. Simulation of rough rice drying by natural air, Korea
22. Integrated research on storage technology for table potatoes
23. Status of postharvest crop protection in the highlands

f) **Socio-economic implications of technological change**

1. Resource utilization, farmers' expectations and risk aversion in crop production and marketing in the highlands
2. Socio-cultural practices in agricultural production in the highlands
3. Constraints to increased agricultural production, Indonesia
4. The economics of a village co-operative, Indonesia
5. Benefit assessment of the National Irrigation System in Cagayan, Philippines with emphasis on farmers' income
6. A casebook on the socio-physiological and cultural aspects/process of technological packaging and dissemination
7. Changing land transactions and arrangements: the case of Luzon, Philippines
8. Cost of irrigating different crops using small scale water ways
9. A socio-economic study of progressive farmers in Nueva Ecija, Philippines

10. On-farm study of crop-animal combinations
11. A study on farms and growth of savings among farmers in Pampanga, Philippines
12. Socio-economics of carabao raising in three selected Central Luzon provinces, Philippines
13. Marketing of major crops in Chitwan, Nepal
14. The economics of hybrid corn
15. A study of socio-economic conditions of farmers in Huai-Keo village, Thailand for agricultural extension work
16. Socio-economic study of coffee growers in the upper north province of Thailand
17. Efficiency of inputs utilization of important crops grown in Chiangmai valley, Thailand
18. Socio-economic analysis of the utilization of major field legumes
19. Decision making and the management process among rural families in Region II, Philippines
20. Economic and social impact of the National Livelihood Movement in Region II, Philippines
21. Impact of farming technology and social organization on the success of the Social Forestry Programme
22. The impact of the Agrarian Reform Programme on the productivity, employment and income distribution of selected areas in the Visayas, Philippines
23. Variables that picture reality, affect living conditions and influence aspiration of rural poor in Leyte, Philippines
24. The social dynamics of planned social change: an ethnographic study of selected villages in Southern Leyte, Philippines
25. Factors associated with farmers' responses to technological changes in farming systems
26. Factors affecting the adoption level of corn technology and the status of repayment among corn production credit recipients in selected municipalities of Cebu and Bohol, Philippines

27. Economics of smallholder poultry farming in Morobe Province, Papua New Guinea

g) **Small farm machines/tools development for small farmers' use**

1. Development and evaluation of solar collector for drying root crops for food and feed
2. Improvement and evaluation of traditional and/or carabao-drawn plow for contour cultivation
3. Establishment and piloting of a village scale flour factory
4. Design and development of a portable animal-powered abaca spindle stripping machine
5. Animal-drawn lime and manure spreader
6. Coconut oil extraction and processing using manual squeezer, copra mill and hand-pumped pressurized strainer
7. On-farm testing of appropriate crop establishment equipment for irrigated maize, wheat, legumes after rice
8. Small tool equipment testing with modification for promising approved tillage systems
9. A low cost solar grain dryer, Thailand
10. Design, construction and evaluation of small farm tools
11. A study on extension measures of farmers' co-operative utilization groups of agricultural machinery, Korea
12. The methodic decision and forward plans of farm mechanization in small farms, Korea
13. Chipping machines for cassava
14. Corn shelters for small farmers
15. Splitting machines for cashew nuts
16. Comparative study on the clay tile lining of small irrigation canals under different thickness of tiles
17. Design, construction and performance test of a kiln for the processing of lime and admixtures
18. Design and development of indigenous binder for the low cost farm structure

19. Design, construction and testing of flatbed grain dryer utilizing the heat generated in the brick kiln during firing and cooking stages
20. Development of low-cost goat housing
21. Improvement and testing of a grain hand seeder
22. Design, construction and test of a metal silo for corn storage
23. The effect of revolution and forwarding speed of the rotary blade on the tilling power requirement, Korea

h) **Participation of men in household responsibilities/duties**

i) **Participation of women in productive activities**

1. The role of married women in rural development in Region VIII, Philippines
2. Role of women in multiple cropping participation in royal irrigated areas and in traditional irrigated areas in Chiang-mai, Thailand
3. The improvement of farm machinery training programme for rural women, Korea
4. Women's role in agriculture, Korea
5. Case study of rural women in Chung Nam province, Korea

j) **Participation of women in economic, political and social activities**

1. A study on the wife's involvement in decision-making in rural families, Korea
2. The decision-making roles of rural women in Eastern Visayas, Philippines
3. An in-depth analysis on the causes of dropping out and the non-use of contraceptives among rural women in Region III, Philippines
4. Case study of young women in Villa Cuizon, Philippines

k) **Other researches related to rural development**

1. Agricultural development stage theory and modernization process of Korean Agriculture

2. A study of migration and over-urbanization in Korea
3. Agricultural and socio-economic studies on waste resource utilization at farm level
4. Survey, diagnosis and identification of virus diseases of crops in Rampur, Nepal
5. Socio-cultural determinants of welfare villages in Korea
6. The assessment of the nutritional status of pre-school children in Ban Pong and Thung Luang Villages, Chiangmai, Thailand
7. Price analysis of selected crops in the Chiangmai valley, Thailand
8. Study and identification of all coffee diseases in Northern Thailand
9. Growth response of Anthurium to different potting media
10. Pilot scale production of root crop-based soy sauce
11. Attitudes, values, aspirations of various groups of farmers towards development, India
12. Selection of guinea pig for high body weight, Papua New Guinea
13. Reproductive performance of goat and sheep, Papua New Guinea
14. Conservation of plant genetic resources, Papua New Guinea.

Appendix X

TRAINING PROGRAMMES OFFERED TO VARIOUS TYPE OF CLIENTELE BY THE SURVEYED INSTITUTIONS

Subject matter	Number and type of clientele*													Total	
	A	B	C	D	E	F	G	H	I	J	K	L	M	No.	%
Adult Education in Rural Areas									40					40	0.3
Agricultural Development			12											12	0.09
Agroforestry										41				41	0.3
Backyard Swine Management	34													34	0.3
Backyard Vegetable Production for Marketing		20												20	0.2
Biogas Technology		7												7	0.06
Bio-Intensive Food Production and Technology										10				10	0.08
Broiler Production			11											11	0.09
Coconut By-Product Utilization			573											573	4.51
Communication Techniques											30	30		60	0.5
Co-operative Promotion and Development								390						390	3.1
Development Journalism										32				32	0.2
Electricity, Machinery and Brick-Making		200												200	1.6
Farm Record Keeping	18		20											38	0.3
Feasibility Studies									50					50	0.4
Fishpond Management: rice-fish and gabi-fish culture				40										40	0.3
Food/Fish/Fruit Preservation	346	10												356	2.8
Fruit, Root Crop and Vegetable Management										70				70	0.6
Garments and Handicrafts	15	7									7			29	0.2
Goat Production		32			2									34	0.3
Grains Postharvest Technology			50											50	0.4

Appendix X (cont'd)

Subject matter	Number and type of clientele*													Total	
	A	B	C	D	E	F	G	H	I	J	K	L	M	No.	%
Highland Resource Cultivation and Development						20								20	0.9
In-Service Training for Trainers												1000		1000	7.9
In-Service Training for Youth and Adult Leaders										40				40	0.3
Integrated Farming Systems: rice production, crop production, animal and livestock production		67	2457						67	12	47		117	2767	21.8
Leadership and Citizen Training		167												167	1.3
Monitoring and Evaluation of Agricultural Technology								600	400	400				1400	11.0
National Service Scheme											1000			1000	7.9
Preparation of Project Proposals on Crops and Animals													117	117	0.9
Programme Management										32				32	0.2
Rural Development Issues and Strategies													117	117	0.9
Short-term Training on the Use of Microcomputers for Research and Extension													95	95	0.7
Skills Development for Youth: tailoring, meat-processing, candle-making		242												242	1.9
Sloping Agriculture Land Technology			50											50	0.4
Special Courses for Homemakers: Cosmetology, dressmaking and food preservation	765													765	6.0
Sports and Community Beautification		70												70	0.6
Technical Training on the Production of Appropriate Crops for the region			500											500	3.9
Technician Training on Disease Prevention and Control										38				38	0.3
Technician Training on Management											16			16	0.1

Appendix X (cont'd)

Subject matter	Number and type of clientele*													Total	
	A	B	C	D	E	F	G	H	I	J	K	L	M	No.	%
Training on Agricultural Innovations and Technology			680	500										1180	9.3
Training on Effective Communication Techniques								100	100	100				300	2.4
Training for Extensionists									20					20	0.2
Training for Field Personnel										15				15	0.1
Training on Food Nutrition and Child Care	350													350	2.8
Training for Project Implementors								30		18				48	0.4
Training for Technical Consultancy Service											40			40	0.3
Vegetable and Fruit Production			210											210	1.6
Vegetable Seed Production and Processing	6		5											15	0.1
Total: No.	1534	822	4568	540	2	20	0	1120	677	808	1077	1097	446	12711	
%	12.1	6.5	35.9	4.2	0.02	0.2	0	8.8	5.3	6.4	8.5	8.6	3.8		

* A Rural women
B Rural youth
C Small farmers
D Small inland fishermen
E Shifting cultivators
F landless agricultural workers
G Policy level personnel in rural development
H Development planners
I Middle level personnel in rural development
J Field level personnel in rural development
K Rural communication workers
L Teachers in rural areas
M Others.

Appendix XI

PROJECTS INVOLVING STUDENTS CONDUCTED BY THE SURVEYED INSTITUTIONS

Project description	Type of learning experience			
	Field/ laboratory	Intern-ship	Thesis	Total
Animal production and management	1		1	2
Barangay Integrated Area Development Project (BIADEP)			1	1
Barangay Integrated Development Approach for Nutrition Improvement (BIDANI)	1			1
Barangay Nursery and Beautification Project	2			2
CLSU-MAF Complementation Programme	1			1
Coffee Extension and Development Project	1			1
Community Leadership Training Project		1		1
Community Beautification Project	1			1
Co-operative Organization and Management	1			1
Demonstration and field trials of HYVs		1		1
Extension and Farm Management Programme		1	1	2
Field demonstration in hybrid tomato production for processing			1	1
Goat and Cattle Dispersal Project	1			1
Highland Agricultural Project to develop opium-based agriculture			1	1

Appendix XI (cont'd)

Project description	Type of learning experience			
	Field/ laboratory	Intern- ship	Thesis	Total
Holistic approach to rural development through the bayanihan school components: Vocational training, capital formation, rural institution formation, and sports/cultural development/ priming health care		1		1
ICAR lab to land scheme	1			1
Integrated crop animal and livestock production projects	1			1
Media mix appropriate for poultry and agriculture development	1		1	2
Multiple Cropping Project	1			1
Pilot Project on Crop Establishment, Production and Management	2		1	3
Pilot Project on Rural Guidance		1		1
Social Laboratory	1	2	1	4
Socio-economic Evaluation of Integrated Rural Development Projects			1	1
Test Farm in Tidal Swamp Area	1		1	2
Varietal Verification Trials of Sweet Potato and White Potato			1	1
Vegetable and Fruit Production Project			1	1
Total	17 (47.2%)	7 (19.4%)	12 (33.3%)	36 (100)

Appendix XIIa

RESEARCH PRIORITIES IN RURAL DEVELOPMENT OF THE SURVEYED INSTITUTIONS

(Listed according to rank) n = 28

Research priorities	No.	Per cent
Improvement of crops and livestock productivity	13	25.5
Farming systems	8	15.7
Integrated action researches	4	7.8
Rural Sociology and Rural Institutions	3	5.9
Socio economics	3	5.9
Technology packaging and delivery system	3	5.9
Agriculture/small farmers' development	2	3.9
Energy, soil water and environmental (including forests) utilization, conservation and management	2	3.9
Fisheries and aquaculture	2	3.9
Food and nutrition system development	2	3.9
Sericulture	2	3.9
Adaptive research	1	2.0
Design and production of farm tools and equipment	1	2.0
Farm management and resource allocation	1	2.0
Feed processing	1	2.0
Harvest and postharvest losses	1	2.0
Hilly land development	1.	2.0
Plant protection	1	2.0
Total	51	100.0

Appendix XIIb

EXTENSION PRIORITIES IN RURAL DEVELOPMENT OF THE SURVEYED INSTITUTIONS

(Listed according to rank) n = 28

Extension priorities	No.	Per cent
Effective packaging, transfer/dissemination of innovations and technologies to clientele	12	48.0
Conduct on-farm demonstrations	2	8.0
Human Resource Development, Trainings, Livelihood Projects	2	8.0
Organization and Mobilization of Farmers' Associations/Organizations	2	8.0
Pilot of recommended farming system	2	8.0
Testing and development of new technology delivery systems	2	8.0
Animal Health Services	1	4.0
Integrated Rural Development Projects	1	4.0
Plant Pest Clinic	1	4.0
Total	25	100.0

Appendix XIIc

TRAINING PRIORITIES IN RURAL DEVELOPMENT OF THE SURVEYED INSTITUTIONS

(Listed according to rank) n = 28

Training priorities	No.	Per cent
Development and upgrading of extension personnel for efficient management of agricultural productivity progress/ programmes	11	39.3
Agricultural skills, technology and farm management techniques for small farmers	6	21.4
Development of training packages to improve farmers' productive skills and capabilities	5	17.8
Leadership training	3	10.7
Offering of MS programme in Extension System Management and courses in community development in the BS level	2	7.1
Farm resource allocation	1	3.6
Total	28	100.0

Appendix XIII

PROGRAMMES RELATED TO RURAL DEVELOPMENT WHICH THE SURVEYED INSTITUTIONS PLAN TO IMPLEMENT

Programmes	No. of times expressed
Technology and information dissemination	6
Development of appropriate technology packages for farmers	6
Conduct field trials, demonstrations and experiments with farmer co-operators	5
Establishment of linkages with government and private agencies	3
Acquisition of modern facilities and equipment	2
Community leadership training projects	2
Conduct pilot projects in agricultural and rural development/integrated rural development	2
Faculty and staff development	2
Farming systems research and development	2
Formal and non-formal training programmes in the service area	2
Graduate programme/curriculum development	2
Researches on rural development	2
Rural literacy programme for adult farmers/ adult education	2
Rural women nutrition and health care programme	2
Training for technicians and agricultural workers	3
Training on integrated farming	2

Appendix XIII (cont'd)

Programmes	No. of times expressed
Animal husbandry and dairy development projects	1
Community improvement and beautification programme	1
Conduct action research programmes	1
Conduct short-term non-degree training programmes	1
Develop extension programmes focusing on women's roles in activities of agricultural production	1
Establish faculty exchange programme with other universities	1
Farmers' training	1
Farmers' training programme on technical and production aspects	1
Highland agricultural projects	1
Horticulture development projects	1
Human resource development	1
Incorporation of communications and extension education in agricultural development programmes	1
Increase pre-service and in-service training programmes for extension workers	1
Infrastructure development	1
Initiate evaluation studies on rural development and develop appropriate indicators	1
Introduction to rural development/agricultural extension as major fields of specialization in the BS and advanced degrees	1
Livestock and crop dispersal	1

Appendix XIII (cont'd)

Programmes	No. of times expressed
Manpower development for research and extension	1
Out-of-school youth development	1
Researches on essential oils/alternative fertilizer sources	1
Rural development and environment studies	1
Salary upgrading of faculty and staff	1
Strengthen research and extension activities through increased funding	1
Studies on small scale farming	1
Upgrading of nutrition status of rural areas	1
Programmes in biotechnology	1